THE INSECTS AND ARACHNIDS OF CANADA

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PART 19

The Ground Spiders of Canada and Alaska

Araneae: Gnaphosidae

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Introduction

The ground spiders, or Gnaphosidae, are stealthy hunters. They live in plant litter, in crevices on tree trunks, and among stones. Most are nocturnal, spending the daylight hours hidden in silken retreats. Because of this secretive way of life, these spiders are most often collected by pitfall traps set into the ground (Martin 1978). They may also be collected by sifting through litter and by turning over stones or logs.

Until recently, ground spiders were among the least well known of North American spiders. A series of generic revisions using modern methods (Platnick 1975, Platnick and Shadab 1975*a*–1988, Platnick and Murphy 1984) has now improved this situation, however, and the species and genera rest on a reasonably stable base, at least for adults of the North American fauna. Grimm (1985) has revised some European representatives. Much work remains to be done on the relationships among the numerous genera and on those of the family itself to other families of hunting spiders, as well as on behavior and ecology. Ground spiders are important to agriculture and to forestry as biological control agents. They feed largely on pests that eat various crops. They are, however, difficult to manipulate and therefore work best where they occur naturally. Crop areas should be tested and spraying practices modified to prevent the destruction of these beneficial arachnids and to make full use of their potential.

Behavior

Behavioral information on ground spiders is rather sparse, owing to their secretive way of life and, until recently, to the difficulty of identifying specimens.

According to Grimm (1985), most ground spiders are found in bright dry habitats such as stony hillsides, grasslands, vineyards, and crevices in tree trunks. Only a few inhabit wet fields, meadows, or bogs, and almost none live in dense shady forests. A few species, such as *Urozelotes rusticus* (L. Koch) and *Scotophaeus blackwalli* (Thorell), are often found in human dwellings and outbuildings. They are widely distributed, presumably by human transport, in several continents (Platnick and Shadab 1977, Platnick and Murphy 1984).

Exceptions to the nocturnal activity of most ground spiders are certain representatives of the genera *Callilepis*, *Nomisia*, *Micaria*, and possibly others that specialize on ants as prey. Heller (1976) recounts how *C. nocturna* (Linnaeus) of Europe bites the ant at its antennal bases, rolls it on its back, and drags it into hiding. In the European *Nomisia* species the spider's venom takes only about 20 s to paralyze the ant (Soyer 1953). Chinnery (1979) describes how the European *Drassodes lapidosus* (Walckenaer) walks about with its front pair of legs held in front like an

ant's antennae, tests the prey with these leg tips, swaths the prey's legs with silk, and finally strikes and kills it. Comparable observations on North American ground spiders are lacking.

Sexual activity begins, as in all spiders, with the newly matured male spinning a tiny sperm web, ejaculating a drop of semen on it, and taking the semen into the reservoirs in the genital bulbs of his palpi. The male of *Callilepis nocturna* pursues the female along the latter's draglines, scenting with the chemosensory setae on the dorsal surface of the palpal cymbium until he discovers her nest. He cuts away enough silk for entry, palpates her legs and body, and mounts over the front, with his first pair of legs drumming and abdomen trembling. The female, if receptive, falls into a state of relaxation; her abdomen rotates on its pedicel, exposing the epigynum on the underside to the male. His embolus finds the copulatory opening and enters it as the hematodocha fills with hemolymph, forcing semen into the female's spermatheca. There may be a rapid series of such insertions on one side followed by a similar series on the other side, or there may be only one prolonged insertion (occupying up to an hour) on each side, depending on the species. Sequestering is known for some species: a mature male locates the retreat of a conspecific female and spins his retreat beside it; as soon as the female completes her final molt and while her body is still pale and soft, he enters her retreat and mates (Gertsch 1979, Grimm 1985).

Eggs are laid in masses and enclosed in a silken sac. Grimm (1985) observed females of *Zelotes* species with eggs within their retreats, but usually a separate egg sac is made. The female may remain on guard or wander away, depending on the species. Sacs vary in color from pure white to reddish brown or pinkish, are often flattened on one side, and may be camouflaged with bits of sand, soil, or plant debris; some are sealed with a tough papery covering into cavities on the undersides of sun-exposed stones.

In most ground spiders, maturity is reached in late spring or early summer. Egg sacs are often found in late summer. The duration of life for individuals is unknown but may vary up to 2 or more years, depending on elevation, latitude, and species. In some species, adults are found year round.

Anatomy

The bodies of ground spiders are elongate and either flattened or somewhat cylindrical (Figs. 1–5). The two body divisions, cephalothorax and abdomen, are connected by a short slender flexible pedicel. The cephalothorax is covered dorsally by a low shield-like carapace, which bears the eyes and the dorsal groove, and ventrally by a smaller flatter sclerite, the sternum, and by the lower lip, or labium. The principal mouthparts and the legs project to the front or sides from the

membranous wall joining the edge of the carapace to the edges of sternum and labium.

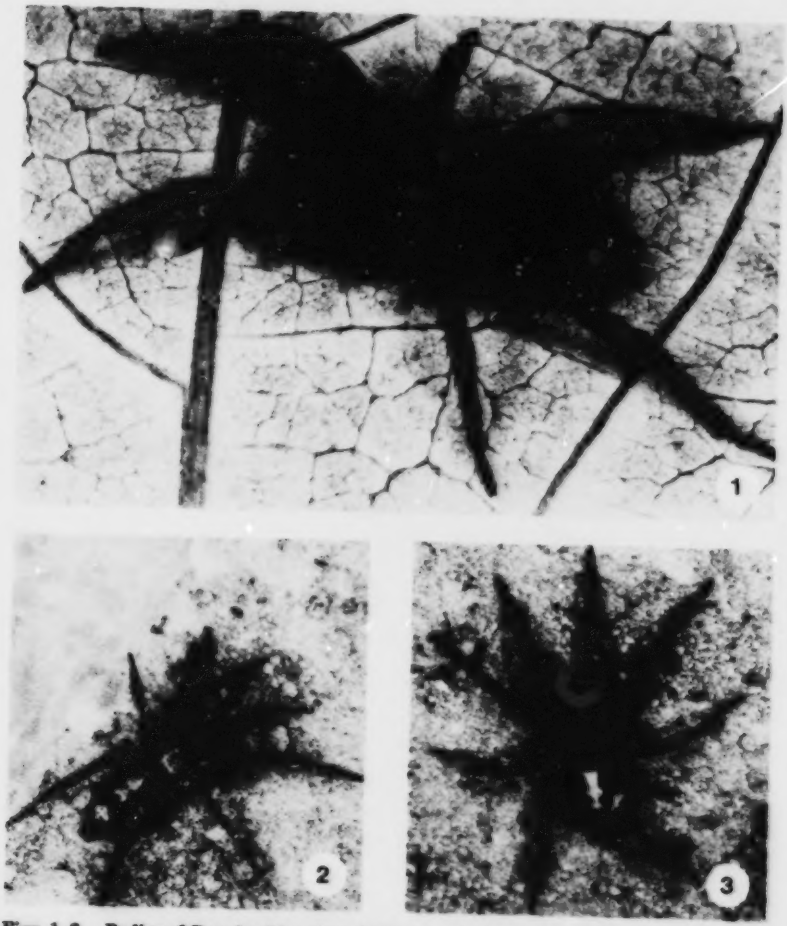
The eyes, 8 in number (Figs. 8, 9), are in 4 pairs designated as anterior median (AME), anterior lateral (ALE), posterior median (PME), and posterior lateral (PLE). They are arranged in 2 transverse rows, and each row may be straight, procurved, or recurved. Sometimes it is useful to speak of the anterior row or of the posterior row, and of the median ocular quadrangle, which is the area bounded by the AME and PME.

The principal mouthparts (Figs. 5, 13–19) are the pincer-like chelicerae and the segmented leg-like palpi. Each chelicera is composed of a large basal segment and a fang; the fang, when at rest, lies in a groove at the end of the basal segment, and the margins (promargin, retromargin) of this groove are often armed with teeth or with a keel or lobe. The palpi lie immediately behind the chelicerae, at the level of the mouth; their basal segments, the coxae, have expanded lobes called the palp-coxal lobes, which form the sides of the preoral cavity and contain glands that pour digestive juices over the prey caught, held, and crushed by the chelicerae. The thin, hard-toothed distal margins of these lobes are referred to as serrulae. The other palpal segments are the trochanter, femur, patella, tibia, tarsus, and a small claw-like pretarsus. In the adult male, the tarsus, pretarsus, and to a lesser extent the tibia of the palpus are modified to form the copulatory organ, the principal parts of which are a dorsal hairy cymbium and the genital bulb. The genital bulb consists primarily of a convex well-sclerotized tegulum, inside which are situated the seminal duct and the semen reservoir, and the intromittent organ, or embolus. The embolus usually rests on and is protected by a sclerite or membrane called the conductor. Associated also with the embolus is, usually, a sclerotized terminal apophysis, and associated with the tegulum is the flexibly attached median apophysis. The subtegulum is a small hard sclerite at the base of the tegulum; it may extend distally along the prolateral margin of the bulb. The palpal tibia in most male ground spiders possesses a stout usually pointed retrolateral apophysis.

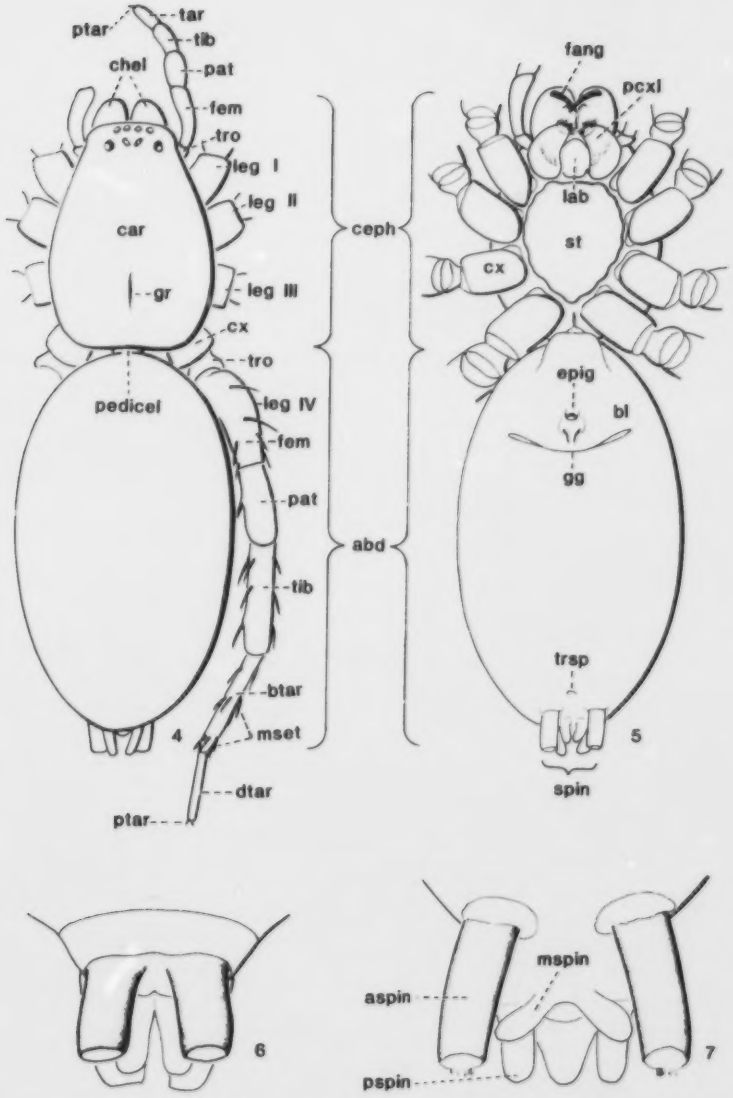
The legs (Fig. 4) are in 4 pairs denoted I to IV from the anterior end. Their relative length is shown by, for example, the sequence 4123, which indicates that leg IV is longest and III shortest. The segments from base to tip are coxa, trochanter, femur, patella, tibia, tarsus (subdivided into basitarsus and distitarsus), and a pair of terminal claws representing the pretarsus. The tarsus and tibia may bear a brush-like pad of setae, or scopula, and any of the segments may have short macrosetae, which are indicated according to position (d, dorsal; p, prolateral; r, retrolateral; and v, ventral; p1-1-1 indicates 1 macroseta on each of the basal, middle, and distal thirds of the segment's prolateral surface). Segments lacking macrosetae are often not mentioned in the macrosetal counts, though the expression 0-0-0 is occasionally useful.

The abdomen is usually elongate, cylindrical, and dorsoventrally flattened. Adult males often sport a shiny dorsal scutum, and both sexes may have color patterns, often formed by bands of white or black setae. Ventrally the abdomen is traversed by the genital groove, with the opening

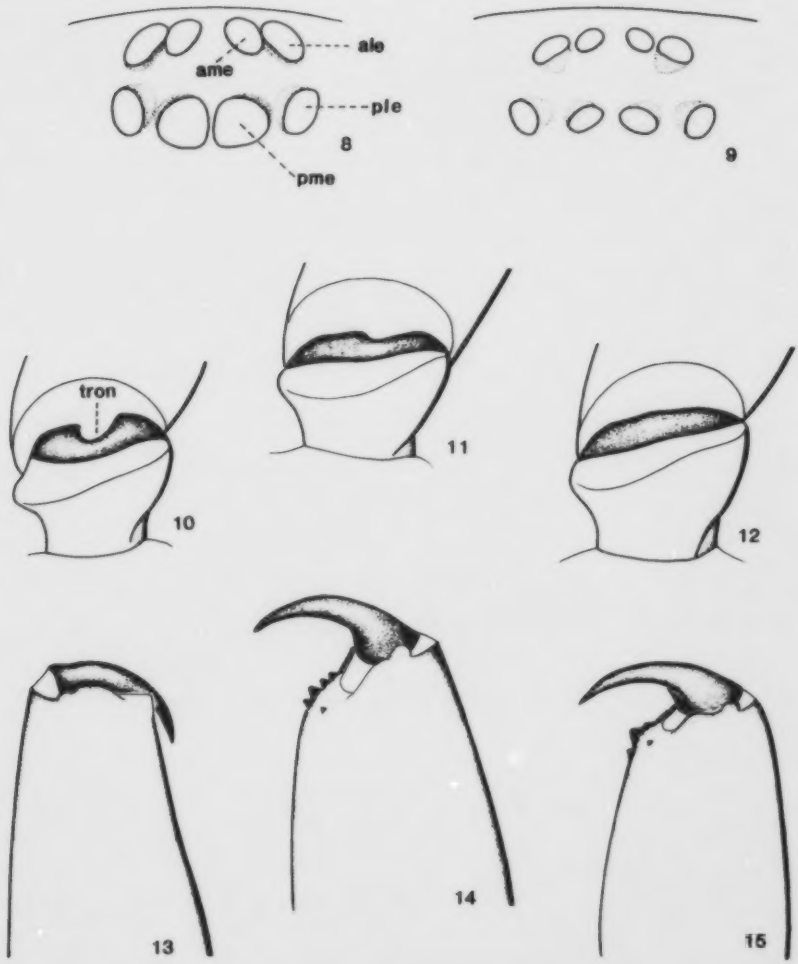
of the internal genitalia (testes, ovaries, and their associated ducts) lying in the groove at the midline. The male's opening is barely distinguishable, but the female's is marked by a sclerotized plate, the epigynum (Figs. 5, 26, 106, 154), which also bears the paired copulatory openings. These openings direct the embolus of the male into the copulatory tubes and the semen into the sac-like spermathecae (Figs. 27, 107, 155), where it is stored until oviposition.



Figs. 1–3. Bodies of Gnaphosidae, dorsal views. 1, *Gnaphosa muscorum*; 2, 3, *Herpyllus ecclesiasticus*. Photographs by H.W. Levi.



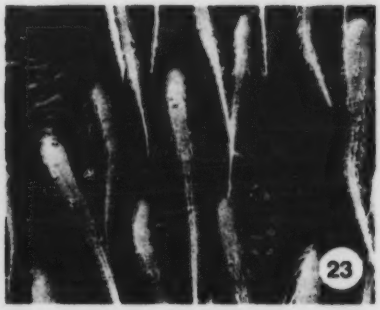
Figs. 4–7. Structures of Gnaphosidae. 4, Body of *Gnaphosa* sp., dorsal view; 5, body of *Gnaphosa* sp., ventral view; 6, spinnerets of *Micaria* sp., ventral view; 7, spinnerets of *Gnaphosa* sp., ventral view. *abd*, abdomen; *aspin*, anterior spinneret; *bl*, book lung; *btar*, basitarsus; *car*, carapace; *ceph*, cephalothorax; *chel*, chelicerae; *cx*, coxa; *dtar*, distitarsus; *epig*, epigynum; *fem*, femur; *gg*, genital groove; *gr*, dorsal groove; *lab*, labium; *mset*, macrosetae; *mspin*, median spinneret; *pat*, patella; *pcxl*, palp-coxal lobe; *pspin*, posterior spinneret; *ptar*, pretarsus; *spin*, spinnerets; *st*, sternum; *tar*, tarsus; *tib*, tibia; *tro*, trochanter; *trsp*, tracheal spiracle.



Figs. 8–15. Structures of Gnaphosidae. 8, eyes of *Drassyllus* sp., dorsal view; 9, eyes of *Zelotes* sp., dorsal view; 10, trochanter of leg IV of *Drassodes* sp., ventral view; 11, trochanter of leg IV of *Herpyllus* sp., ventral view; 12, trochanter of leg IV of *Callilepis* sp., ventral view; 13, left chelicera of *Sergiolus decoratus*, anterior view; 14, left chelicera of *Herpyllus ecclesiasticus*, posterior view; 15, left chelicera of *Litopyllus temporarius*, posterior view. *ale*, anterior lateral eye; *ame*, anterior median eye; *ple*, posterior lateral eye; *pme*, posterior median eye; *tron*, trochanteral notch.

Figs. 16–19. Structures of Gnaphosidae. 16, right chelicera of *Gnaphosa muscorum*, posterior view; 17, labium and palp-coxal lobes of *Gnaphosa muscorum*, ventral view; 18, left chelicera of *Callilepis pluto*, posterior view; 19, mouthparts of *Callilepis pluto*, ventral view.

Figs. 20, 21. Preening comb on basitarsus III or IV of *Drassyllus* sp., ventral views.



Figs. 22, 23. Abdominal setae of *Nodocion floridanus*, ventral views. 22, 5× magnification; 23, 1000× magnification.

Ground spiders breathe by both book lungs and tracheae. The book lungs open through a pair of slits lateral to the genital opening, and the tracheae open through a single slit-like spiracle situated immediately anterior to the spinnerets (Fig. 5). The spinnerets are in three pairs, forming a cluster at the posterior end of the abdomen; they are the anterior, median, and posterior pairs. Each spinneret is formed of a single segment.

Additional, more specialized terms are given in the descriptions of the family and the genera, and in the glossary. Measurements include total length of the body, measured along the middorsal line from the anterior margin of the carapace to the tip of the abdomen; carapace length, measured along the middorsal line from anterior to posterior extremities; carapace width, measured on the dorsal surface at its widest point; and femur II length, measured laterally. These measurements are given as the mean and standard deviation for 10 individuals and as the range for three to nine individuals. The size of the eyes and the distances between them are those from a single mature male or female of each species. The sequence of genera and species in the keys is repeated in the text.

Family Gnaphosidae Simon

Description. Total length 1.7–17.3 mm. Carapace ovoid, smoothly convex at sides, gradually or abruptly narrowed toward front, rather low, usually with distinct dorsal groove (Fig. 4). Eyes small, arranged in two transverse rows of 4 each; anterior median eyes round, and remaining (secondary) eyes round, ovoid, or angular, depending on genus; posterior median eyes flattened, irregular in shape. Chelicerae short, robust, tapered from base to tip, and hairy in front; promargin with or without teeth or with a carina; retromargin with 1 tooth or more, a keel, a rounded lobe, or none of these (Figs. 4, 5, 13–16, 18). Sternum flat, ovoid, truncate

in front and pointed behind. Legs prograde, usually rather short and stout, hairy; tarsi I and II often (and III and IV sometimes) with dense scopulae; tarsi occasionally with claw tufts; macrosetae rather short and sparse; leg IV longest and leg III shortest; each tarsus with pair of toothed claws. Abdomen elongate, somewhat cylindrical, usually unicolorous, but with black, white, or orange patterns in representatives of some genera; abdomen usually with dorsal scutum in adult males and with cluster of erect curved setae at anterior end. Spinnerets unisegmented; anterior spinnerets elongate, well sclerotized, cylindrical, well separated at base (Figs. 5–7). Palp-coxal lobes with distinctive oblique depression on ventral surface and with serrula at tip (Figs. 5, 17, 19). Palpus of male usually with stout pointed retrolateral tibial apophysis; genital bulb usually convex, with large bulging tegulum, with smaller subtegulum, with slender tapered embolus, and usually with conductor, terminal apophysis, and median apophysis (Figs. 24, 104). Epigynum with single depression or with paired depressions separated by median septum or scape; epigynum often delimited anteriorly, laterally, and posteriorly by groove-like anterior, lateral, and posterior margins, respectively; lateral epigynal margins usually marking positions of copulatory openings (Figs. 26, 106, 154). Copulatory tubes variable in length and thickness according to genus and species, often with paired blind ducts; spermathecae round, ovoid, or elongate (Figs. 27, 107, 155).

Comments. Ground spiders share many characters with sac spiders (Dondale and Redner 1982) and related families of hunters but are distinguished from all them by the presence of an oblique depression on the ventral surface of each palp-coxal lobe. In addition, the anterior spinnerets are modified as stated above, and many representatives also possess irregularly shaped secondary eyes and conspicuous cuticular epigynal margins.

Gnaphosidae comprises an estimated 141 genera and 1500 species distributed on all the habitable continents. Thirty genera and about 330 species are represented in North America, and 16 genera and 100 species occur in Canada and Alaska.

Key to genera of Gnaphosidae

1. Anterior spinnerets short (Fig. 6). Abdomen usually (and carapace sometimes) covered with scale-like iridescent setae ..... ***Micaria* Westring** (p. 22)

   Anterior spinnerets longer, distinctly cylindrical (Fig. 7). Body lacking scale-like iridescent setae 2

2(1). Basitarsi III and IV with ventral preening comb formed by row of long parallel setae of uniform length (Figs. 20, 21) 3

Basitarsi III and IV lacking preening comb, though brush of finer setae may be present 5

3(2). Posterior median eyes smaller than, equal to, or somewhat larger than posterior lateral eyes and separated by half their maximum width or more (Fig. 9) ..... ***Zelotes* Gistel** (p. 69)

Posterior median eyes distinctly larger than posterior lateral eyes and separated by less than half their maximum width (Fig. 8) 4

4(3). Palpus of male with terminal apophysis having large distally directed process (Figs. 164, 176). Copulatory tubes of female having ducts straight or tortuous, not abruptly angled nor bulbous (Figs. 155, 159, 167) ..... ***Drassyllus* Chamberlin** (p. 98)

Palpus of male with terminal apophysis lacking large process (Fig. 216). Copulatory tubes of female having ducts abruptly angled and bulbous (Fig. 219) ..... ***Urozelotes* Mello-Leitão** (p. 137)

5(2). Leg trochanters with deep ventral notch at tip (Fig. 10) ..... ***Drassodes* Westring** (p. 140)

Leg trochanters with shallow notch (Fig. 11) or without notch (Fig. 12) 6

6(5). Cheliceral retromargin with toothed keel (Fig. 16) or with translucent lobe (Fig. 18) 7

Cheliceral retromargin with neither keel nor lobe, though teeth and denticles may be present 8

7(6). Cheliceral retromargin with toothed keel (Fig. 16) ..... ***Gnaphosa* Latreille** (p. 154)

Cheliceral retromargin with translucent lobe (Fig. 18) ..... ***Callilepis* Westring** (p. 189)

8(6). Male palpus with conspicuously enlarged median apopysis (Figs. 297, 301). Female with epigynum with distinct raised scape (Figs. 299, 303) ..... ***Sosticus* Chamberlin** (p. 197)

Male palpus with median apophysis, if present, not conspicuously enlarged nor sclerotized. Female with epigynum lacking distinct raised scape 9

9(8). Cheliceral retromargin with two teeth. Patellae III and IV usually without macrosetae, or one or the other with a single macroseta. Terminal apophysis conspicuous (Figs. 309, 317) 10

Cheliceral retromargin with one tooth (or denticle) or bare. Patellae III and IV usually with a macroseta on prolateral or retrolateral surfaces, or on both. Terminal apophysis not conspicuous 11

10(9). Tibia I with one or more ventral macrosetae. Posterior median eyes separated by more than their maximum width. Male palpal tibia with retrolateral apophysis bifid or laterally expanded (Figs. 305, 309, 313) and with median apophysis, if present, not hooked (Fig. 309). Epigynum lacking groove-like anterior margin (Figs. 307, 311) ..... ***Orodrassus*** **Chamberlin** (p. 202)

Tibia I without ventral macrosetae. Posterior median eyes separated by less than their maximum width. Male palpal tibia with retrolateral apophysis flattened, not bifid or laterally expanded (Figs. 319, 323, 327), and with median apopysis hooked (Figs. 317, 322, 326). Epigynum usually with distinct groove-like anterior margin (Figs. 320, 324, 328) ..... ***Haplodrassus*** **Chamberlin** (p. 210)

11(9). Cheliceral promargin with smooth undivided carina (Fig. 13) 12

Cheliceral promargin with teeth separated or with teeth joined at base (Fig. 14) 14

12(11). Cheliceral retromargin without teeth or denticles. Male with palpus having well-developed median apophysis (Figs. 343, 399). Female with copulatory tubes possessing median ducts or spermathecal organs (Figs. 346, 357, 402, 4170) 13

Cheliceral retromargin with single tooth or denticle (may be extremely small, Fig. 15). Male with palpus lacking median apophysis (Fig. 338). Female with copulatory tubes lacking ducts or spermathecal organs (Fig. 341) ..... ***Litopyllus*** **Chamberlin** (p. 224)

13(12). Tibia I and patella I together equal to or shorter than femur I. Eyes approximately uniform in size and close together. Abdomen with one or more transverse white bands; bands may be interrupted at midline (Figs. 342, 347, 364). Male palpus with cymbium shallowly excavated opposite tibial apophysis (Figs. 343, 359) ..... ***Sergiolus*** **Simon** (p. 226)

Tibia I and patella I together longer than femur I. Median eyes larger than lateral eyes; all eyes more widely separated. Abdomen lacking transverse white bands. Male palpus with cymbium deeply excavated opposite tibial apophysis (Figs. 399, 406, 410) ..... ***Nodocion*** **Chamberlin** (p. 253)

14(11). Abdomen with broad black longitudinal bands alternating with white bands (Figs. 422, 423) ..... ***Cesonia*** **Simon** (p. 265)

Abdomen uniformly grayish or brownish, or with series of connected white spots along midline (Figs. 2, 3) 15

15(14). Male with median apophysis straight (Figs. 433, 437). Female with spermathecae concealing median ducts (Figs. 436, 440) ..... ***Herpyllus*** **Hentz** (p. 269)

Male with median apophysis hooked (Fig. 441). Female with spermathecae not concealing median ducts (Fig. 444) ..... ***Scotophaeus*** **Simon** (p. 277)

Clé des genres de Gnaphosidés

1. Filières antérieures courtes (fig. 6). Abdomen (et parfois carapace) généralement couvert de soies irisées à l'aspect d'écailles ..... ***Micaria*** **Westring** (p. 22)

Filières antérieures plus longues, nettement cylindriques (fig. 7). Corps dépourvu de soies irisées à l'aspect d'écailles 2

2(1). Basitarses III et IV pourvus d'un peigne ventral formé d'une rangée de longues soies parallèles de longueur uniforme (fig. 20, 21) 3

Basitarses III et IV sans peigne, mais présence possible d'une brosse de soies plus fines 5

3(2). Yeux médians postérieurs plus petits, de même grandeur ou un peu plus grands que les yeux latéraux postérieurs et séparés par la moitié de leur largeur maximale ou plus (fig. 9) ..... ***Zelotes*** **Gistel** (p. 69)

Yeux médians postérieurs nettement plus grands que les yeux latéraux postérieurs et séparés par moins de la moitié de leur largeur maximale (fig. 8) 4

4(3). Palpe du mâle pourvu d'une apophyse terminale à grand processus orienté distalement (fig. 164, 176). Tubes copulateurs de la femelle munis de canaux droits ou tortueux, sans angles abrupts ni forme bulbeuse (fig. 155, 159, 167) ..... ***Drassyllus*** **Chamberlin** (p. 98)

Palpe du mâle pourvu d'une apophyse terminale sans grand processus (fig. 216). Tubes copulateurs de la femelle munis de canaux en angles abrupts et de forme bulbeuse (fig. 219) ..... ***Urozelotes*** **Mello-Leitão** (p. 137)

5(2). Trochanters des pattes pourvus d'une profonde encoche ventrale à l'extrémité (fig. 10) ..... ***Drassodes*** **Westring** (p. 140)

Trochanters des pattes pourvus d'une encoche peu profonde (fig. 11) ou dépourvus d'encoche (fig. 12) 6

6(5). Rétromarge chélicérienne à carène dentée (fig. 16) ou à lobe translucide (fig. 18) 7

Rétromarge chélicérienne sans carène ni lobe, mais présence possible de dents et de denticules 8

7(6). Rétromarge chélicérienne à carène dentée (fig. 16) ..... ***Gnaphosa*** **Latreille** (p. 154)

Rétromarge chélicérienne à lobe translucide (fig. 18) ..... ***Callilepis*** **Westring** (p. 189)

8(6). Palpe du mâle pourvu d'une apophyse médiane agrandie visiblement (fig. 297, 301). Femelle dont l'épigyne est pourvue d'un scape soulevé distinct (fig. 299, 303) ..... ***Sosticus*** **Chamberlin** (p. 197)

Palpe du mâle pourvu d'une apophyse médiane, le cas échéant, non visiblement agrandie ni sclérifiée. Femelle dont l'épigyne est dépourvue de scape soulevé distinct 9

9(8). Rétromarge chélicérienne pourvue de deux dents. Patelles III et IV généralement dépourvues de macrosoies, ou l'une ou l'autre munie d'une seule macrosoie. Apophyse terminale visible (fig. 309, 317) 10

Rétromarge chélicérienne pourvue d'une dent (ou d'un denticule) ou nue. Patelles III ou IV généralement munies d'une macrosoie sur les surfaces prolatérale ou rétrolatérale ou sur les deux. Apophyse terminale non visible 11

10(9). Tibia I pourvu d'une ou de plusieurs macrosoies ventrales. Yeux médians postérieurs séparés par plus de leur largeur maximale. Tibia palpal mâle muni d'une apophyse rétrolatérale bifide ou étendue latéralement (fig. 305, 309, 313) et d'une apophyse médiane, le cas échéant, dépourvue de crochet (fig. 309). Épigyne sans marge antérieure en forme de rainure (fig. 307, 311) .... ***Orodrassus*** **Chamberlin** (p. 202)

Tibia I sans macrosoie ventrale. Yeux médians postérieurs séparés par moins de leur largeur maximale. Tibia palpal mâle muni d'une apophyse rétrolatérale aplatie, pas bifide ni étendue latéralement (fig. 319, 323, 327) et d'une apophyse médiane pourvue d'un crochet (fig. 317, 322, 326). Épigyne généralement pourvue d'une marge antérieure distincte en forme de rainure (fig. 320, 324, 328) .... ***Haplodrassus*** **Chamberlin** (p. 210)

11(9). Promarge chélicérienne pourvue d'une carène lisse non divisée (fig. 13) 12

Promarge chélicérienne pourvue de dents séparées ou de dents réunies à la base (fig. 14) 14

12(11). Rétromarge chélicérienne sans dents ni denticules. Mâle dont le palpe est pourvu d'une apophyse médiane bien développée (fig. 343, 399). Femelle dont les tubes copulateurs sont munis de canaux médians ou d'organes spermathécaux (fig. 346, 357, 402, 417) 13

Rétromarge chélicérienne pourvue d'une seule dent ou d'un seul denticule (pouvant être extrêmement petit, fig. 15). Mâle dont le palpe est dépourvu d'apophyse médiane (fig. 338). Femelle dont les tubes copulateurs sont dépourvus de canaux et d'organes spermathécaux (fig. 341) .. ***Litopyllus*** **Chamberlin** (p. 224)

13(12). Tibia I et patelle I réunis, de même longueur ou plus courts que le fémur I. Yeux de dimensions à peu près uniformes et rapprochés. Abdomen pourvu d'une ou de plusieurs bandes blanches transverses; les bandes peuvent s'arrêter à la ligne médiane (fig. 342, 347, 364). Palpe du mâle pourvu d'un cymbium creusé peu profondément vis-à-vis de l'apophyse tibiale (fig. 343, 359) ..... ***Sergiolus*** **Simon** (p. 226)

Tibia I et patelle I réunis, plus longs que le fémur I. Yeux médians plus grands que les yeux latéraux; tous les yeux sont séparés par une distance plus grande. Abdomen dépourvu de bandes blanches transverses. Palpe du mâle pourvu d'un cymbium creusé profondément vis-à-vis de l'apophyse tibiale (fig. 399, 406, 410) ..... ***Nodocion*** **Chamberlin** (p. 253)

14(11). Abdomen pourvu de larges bandes noires longitudinales alternant avec des bandes blanches (fig. 422, 423) .... ***Cesonia*** **Simon** (p. 265)

Abdomen uniformément grisâtre ou brunâtre, ou muni d'une série de points blancs reliés le long de la ligne médiane (fig. 2, 3) 15

15(14). Mâle ayant une apophyse médiane droite (fig. 433, 437). Femelle ayant des spermathèques qui dissimulent les conduits médians (fig. 436, 440) ..... ***Herpyllus*** **Hentz** (p. 269)

Mâle ayant une apophyse médiane en forme de crochet (fig. 441). Femelle ayant des spermathèques qui ne cachent pas les conduits médians (fig. 444) ..... ***Scotophaeus*** (p. 277)

Genus *Micaria* Westring

Spiders of the genus *Micaria* are small active hunters often found in hot dry habitats in full sunlight. Most possess the slender bodies and thin legs of ant mimics. Their abdomens often display constrictions and transverse bands of contrasting setae that mimic the ant's segmentation, and a shine produced by flattened scale-like iridescent setae. In addition, the spider's front legs may be held in front like antennae, and its nervous walk is clearly reminiscent of an ant's. Individuals of several species of *Micaria* have been observed running with ants; examples are *M. longipes* Emerton and *M. porta* Platnick and Shadab, appearing with *Myrmecocystus mimicus* Wheeler, and *M. gertschi* Barrows and Ivie and *M. longispina* Emerton, appearing with *Tapinoma sessile* (Say). Whether ant mimicry and ant association permit the spiders to prey more readily on these insects or merely provide extra protection from enemies is unknown.

Earlier workers tended to place *Micaria* in the family Clubionidae, but Wunderlich (1979) and Platnick and Shadab (1988) showed that members of this genus possess flattened posterior median eyes, obliquely depressed palp-coxal lobes, and basally separated anterior spinnerets, characters that clearly place them in the family Gnaphosidae. The former placement of the genus with the sac spiders seems to have been due to the relatively small size of the anterior spinnerets, which in poorly preserved specimens often appear to be touching. Close examination of well-preserved specimens shows that the bases of these spinnerets are always separated by roughly their width (Fig. 6).

Description. Total length 1.3–6.5 mm. Carapace ovoid, widest at level of coxae II, and abruptly narrowed at level of palpal coxae; carapace flattened anteriorly, with erect bristles in eye area and on front, and usually having many scale-like iridescent setae. Both rows of eyes procurved from front and from above; eyes approximately equal in size, evenly spaced except that anterior lateral eyes are separated from anterior median eyes by less than a radius; lateral eyes ovoid; median ocular quadrangle usually longer than width at front or back. Chelicerae usually with 2 teeth on promargin and 1 on retromargin. Palp-coxal lobes approximately rectangular. Legs typically with macrosetae as follows: femora I, II d1-0-0, p0-0-1; III d1-1-0, p0-0-1; IV d1-0-0; tibiae III p0-1-1, v2-2-2; IV v2-2-2; basitarsi III, IV p0-1-1, v2-2-2, r0-1-1; coloring variable among species but anterior femora usually darkened; tibiae (distally), basitarsi and distitarsi I and II, and distitarsi III and IV with double row of stiff setae ventrally; trochanters not notched; basitarsi III and IV without preening comb; distal segments with double row of long dorsal trichobothria. Abdomen variable in color (even within species), without dorsal scutum, with scale-like iridescent setae, and often with constriction at one-third distance from anterior end. Anterior spinnerets short, separated at base by approximately their width. Palpus of male (Figs. 24, 32, 44) with retrolateral tibial apophysis, with embolus arising on

prolateral side of genital bulb, with broadly looped seminal duct, and usually with strong hooked median apophysis. Epigynum (Figs. 26, 38, 46) usually with distinct anterior margin and rarely with median septum; anterior margin sometimes divided into two parts; copulatory tubes usually long and slender; spermathecae rounded, elongated, or kidney-shaped; copulatory tubes and spermathecae usually visible externally through integument.

Comments. Members of the genus *Micaria* are distinguished from those of other gnaphosid genera by the ant-like appearance resulting from a small body, slender legs, a constricted abdomen, scale-like iridescent setae, and an ant-like posture and gait. Approximately 100 species have been described around the world: 43 are known in North America (Platnick and Shadab 1988), 20 of which occur or are thought to occur in Canada and Alaska.

Key to species of *Micaria*

1. Male 2
   Female 21

2(1). Palpal tibia with dorsal swelling (Figs. 25, 29) 3
   Palpal tibia without dorsal swelling 4

3(2). Median apophysis long, arising near middle of genital bulb; embolus short and wide (Fig. 24) ..... ***pulicaria* (Sundevall)** (p. 32)
   Median apophysis shorter, arising in basal half of genital bulb; embolus longer, more slender (Fig. 28) ..... ***tripunctata* Holm** (p. 34)

4(2). Retrolateral tibial apophysis arising on basal half of palpal tibia (Figs. 33, 37, 41) 5
   Retrolateral tibial apophysis arising at tip of palpal tibia 7

5(4). Median apophysis arising near retrolateral margin of genital bulb (Figs. 36, 40) 6
   Median apophysis arising near midline of genital bulb (Fig. 33) ..... ***riggsi* Gertsch** (p. 37)

6(5). Median apophysis long, slender, minutely hooked at tip (Fig. 36) ..... ***longipes* Emerton** (p. 39)
   Median apophysis shorter, stouter, broadly hooked at tip (Fig. 40) ..... ***emertoni* Gertsch** (p. 41)

7(4). Median apophysis minute or absent (Figs. 44, 52) 8

Median apophysis well developed (Figs. 64, 76) 12

8(7). Palpal tibia approximately three times as long as wide (Figs. 44, 48) 9

Palpal tibia approximately twice as long as wide (Figs. 52, 56, 60) 10

9(8). Embolus long, extending distally beyond tip of genital bulb (Fig. 44) ..... ***rossica*** **Thorell** (p. 43)

Embolus shorter, not extending distally beyond tip of genital bulb (Fig. 48) ..... ***foxi*** **Gertsch** (p. 45)

10(8). Retrolateral tibial apophysis approximately as long as palpal tibia (Fig. 53) ..... ***medica*** **Platnick & Shadab** (p. 46)

Retrolateral tibial apophysis distinctly shorter than palpal tibia (Figs. 57, 61) 11

11(10). Retrolateral tibial apophysis straight (Fig. 57); median apophysis absent; embolus curled at tip (Fig. 56) ..... ***utahna*** **Gertsch** (p. 48)

Retrolateral tibial apophysis sinuous (Fig. 61); median apophysis present but minute; embolus smoothly curved at tip (Fig. 60) ..... ***aenea*** **Thorell** (p. 50)

12(7). Median apophysis situated adjacent to retrolateral margin of genital bulb (Figs. 64, 68, 72) 13

Median apophysis situated at or near midline of genital bulb (Figs. 76, 80, 84) 15

13(12). Retrolateral tibial apophysis long (approximately as long as palpal tibia, Figs. 69, 73) 14

Retrolateral tibial apophysis minute (Fig. 65) ..... ***gertschi*** **Barrows & Ivie** (p. 52)

14(13). Embolus expanded and bent ventrally at tip (Figs. 68, 69). Spider occurring east of Rocky Mountains (Map 10) ..... ***longispina*** **Emerton** (p. 54)

Embolus slender and curved prolaterally at tip (Figs. 72, 73). Spider occurring west of Rocky Mountains (Map 10) ..... ***idana*** **Platnick & Shadab** (p. 55)

15(12). Median apophysis long, slender, extending nearly to tip of genital bulb (Fig. 76) ..... ***elizabethae*** **Gertsch** (p. 57)

Median apophysis shorter, thicker, not extending to tip of genital bulb (Figs. 80, 84, 88) 16

16(15). Median apophysis with 2 hooks (Figs. 80, 81); tegulum greatly protruding at base (Fig. 81) ..... ***porta* Platnick & Shadab** (p. 59)

Median apophysis with single hook (Figs. 84, 88); tegulum not greatly protruding at base (Figs. 85, 89) 17

17(16). Retrolateral tibial apophysis rather broad basally, abruptly narrowed to fine tip (Fig. 85) ..... ***mormon* Gertsch** (p. 60)

Retrolateral tibial apophysis more slender basally, not abruptly narrowed (Figs. 89, 93) 18

18(17). Embolus conspicuously broadened at base or nearer tip (Figs. 88, 92) 19

Embolus not conspicuously broadened at base (Figs. 96, 100) 20

19(18). Seminal duct strongly arched away from prolateral margin of genital bulb (Fig. 88). Spider occurring in southern Alberta, southern Saskatchewan, and southward (Map 14) ..... ***laticeps* Emerton** (p. 62)

Seminal duct gently arched away from prolateral margin of genital bulb (Fig. 92). Spider occurring in northern regions (Map 14) ..... ***alpina* L. Koch** (p. 64)

20(18). Retrolateral tibial apophysis approximately one-half as long as palpal tibia (Fig. 97) ..... ***coloradensis* Banks** (p. 66)

Retrolateral tibial apophysis distinctly less than one-half as long as palpal tibia (Fig. 101) ..... ***constricta* Emerton** (p. 67)

21(1). Epigynum with distinct anterior margin; margin may be divided (Figs. 26, 98) 22

Epigynum lacking anterior margin (Figs. 46, 50, 70) 38

22(21). Anterior epigynal margin arched or angled posteriorly at midline, or divided into two parts (Figs. 26, 38, 98) 23

Anterior epigynal margin arched or angled anteriorly at midline, not divided (Figs. 62, 82, 94) 36

23(22). Anterior epigynal margin with ends angled posteriorly (Fig. 38) ..... ***longipes* Emerton** (p. 39)

Anterior epigynal margin with ends curved posteriorly or straight 24

24(23). Epigynum with broad shallow depression (Fig. 54) ..... ***medica* Platnick & Shadab** (p. 46)

Epigynum without broad shallow depression 25

25(24). Anterior epigynal margin divided into two widely separated parts (Fig. 102) ..... ***constricta*** **Emerton** (p. 67)

Anterior epigynal margin divided into narrowly separated parts or not divided 26

26(25). Anterior epigynal margin extended posteriorly far along midline (Figs. 74, 75) ..... ***idana*** **Platnick & Shadab** (p. 55)

Anterior epigynal margin extended posteriorly a short distance along midline or not extended posteriorly 27

27(26). Spermathecae extending anteriorly beyond level of anterior epigynal margin (Figs. 34, 42, 90) 28

Spermathecae not extending anteriorly beyond level of anterior epigynal margin 30

28(27). Spermathecae greatly convoluted (Fig. 35) ..... ***riggsi*** **Gertsch** (p. 37)

Spermathecae somewhat or not convoluted (Figs. 43, 91) ... 29

29(28). Spermathecae somewhat convoluted (Fig. 43) ..... ***emertoni*** **Gertsch** (p. 41)

Spermathecae not convoluted (Fig. 91) ..... ***laticeps*** **Emerton** (p. 62)

30(27). Anterior epigynal margin with ends strongly curved posteriorly (Figs. 58, 78, 98) 34

Anterior epigynal margin with ends not strongly curved posteriorly 31

31(30). Copulatory tubes long, extending anteriorly as far as anterior ends of spermathecae or nearly so (Figs. 27, 31, 67) 32

Copulatory tubes shorter, extending anteriorly only a short distance (Fig. 87) ..... ***mormon*** **Gertsch** (p. 60)

32(31). Spermathecae long, rather slender (Figs. 27, 31) 33

Spermathecae shorter, thicker, approximately kidney-shaped (Fig. 67) ..... ***gertschi*** **Barrows & Ivie** (p. 52)

33(32). Copulatory tubes somewhat curved at anterior ends (Fig. 27) ..... ***pulicaria*** **(Sundevall)** (p. 32)

Copulatory tubes abruptly angled at anterior ends (Fig. 31) .... ***tripunctata*** **Holm** (p. 34)

34(30). Anterior epigynal margin long, undivided, with ends shallowly curved (Fig. 78) ..... ***elizabethae*** **Gertsch** (p. 57)

Anterior epigynal margin shorter, divided into two parts, with ends abruptly curved (Figs. 58, 98) 35

35(34). Anterior epigynal margin thick, dark (Fig. 98) ..... ***coloradensis* Banks** (p. 66)

Anterior epigynal margin more slender, pale (Fig. 58) ..... ***utahna* Gertsch** (p. 48)

36(22). Anterior epigynal margin slender, with ends not curved posteriorly (Fig. 82) .... ***porta* Platnick & Shadab** (p. 59)

Anterior epigynal margin thicker, with ends curved posteriorly (Figs. 62, 94) 37

37(36). Spermathecae short, stout, extending only short distance anteriorly (Fig. 63) ..... ***aenea* Thorell** (p. 50)

Spermathecae longer, extending far anteriorly (Fig. 95) ..... ***alpina* L. Koch** (p. 64)

38(21). Spermathecae elongate, curved (Figs. 47, 51). Carapace length more than 1.20 mm 39

Spermathecae shorter, ovoid (Fig. 71). Carapace length less than 1.10 mm ..... ***longispina* Emerton** (p. 54)

39(38). Median septum broad, occupying approximately two-thirds of space between spermathecae (Fig. 46) ..... ***rossica* Thorell** (p. 43)

Median septum more slender, occupying one-third of space or less between spermathecae (Fig. 50) ... ***foxi* Gertsch** (p. 45)

Clé des espèces de *Micaria*

1. Mâle 2

Femelle 21

2(1). Tibia palpal à renflement dorsal (fig. 25, 29) 3

Tibia palpal sans renflement dorsal 4

3(2). Apophyse médiane longue, s'élevant près du centre du bulbe génital; embolus court et large (fig. 24) ..... ***pulicaria* (Sundevall)** (p. 32)

Apophyse médiane plus courte, s'élevant de la moitié basale du bulbe génital; embolus plus long, plus effilé (fig. 28) ..... ***tripunctata* Holm** (p. 34)

4(2). Apophyse tibiale rétrolatérale s'élevant de la moitié basale du tibia palpal (fig. 33, 37, 41) 5

Apophyse tibiale rétrolatérale s'élevant à l'extrémité du tibia palpal 7

5(4). Apophyse médiane s'élevant près de la marge rétrolatérale du bulbe génital (fig. 36, 40) 6

Apophyse médiane s'élevant près de la ligne médiane du bulbe génital (fig. 33) ..... ***riggsi*** **Gertsch** (p. 37)

6(5). Apophyse médiane longue, effilée, munie d'un minuscule crochet à l'extrémité (fig. 36) ..... ***longipes*** **Emerton** (p. 39)

Apophyse médiane plus courte, plus grosse, munie d'un crochet plus ouvert à l'extrémité (fig. 40) ..... ***emertoni*** **Gertsch** (p. 41)

7(4). Apophyse médiane minuscule ou absente (fig. 44, 52) 8

Apophyse médiane bien développée (fig. 64, 76) 12

8(7). Tibia palpal environ trois fois plus long que large (fig. 44, 48) 9

Tibia palpal environ deux fois plus long que large (fig. 52, 56, 60) 10

9(8). Embolus long, s'étendant distalement au-delà de l'extrémité du bulbe génital (fig. 44) ..... ***rossica*** **Thorell** (p. 43)

Embolus plus court, ne s'étendant pas distalement au-delà de l'extrémité du bulbe génital (fig. 48) .... ***foxi*** **Gertsch** (p. 45)

10(8). Apophyse tibiale rétrolatérale environ aussi longue que le tibia palpal (fig. 53) ..... ***medica*** **Platnick & Shadab** (p. 46)

Apophyse tibiale rétrolatérale nettement plus courte que le tibia palpal (fig. 57, 61) 11

11(10). Apophyse tibiale rétrolatérale droite (fig. 57); apophyse médiane absente; embolus enroulé à l'extrémité (fig. 56) ..... ***utahna*** **Gertsch** (p. 48)

Apophyse tibiale rétrolatérale sinueuse (fig. 61); apophyse médiane présente mais minuscule; embolus faiblement enroulé à l'extrémité (fig. 60) ..... ***aenea*** **Thorell** (p. 50)

12(7). Apophyse médiane adjacente à la marge rétrolatérale du bulbe génital (fig. 64, 68, 72) 13

Apophyse médiane située à la ligne médiane ou près de la ligne médiane du bulbe génital (fig. 76, 80, 84) 15

13(12). Apophyse tibiale rétrolatérale longue (environ aussi longue que le tibia palpal, fig. 69, 73) 14

Apophyse tibiale rétrolatérale minuscule (fig. 65) ..... ***gertschi* Barrows & Ivie** (p. 52)

14(13). Embolus étendu et fléchi ventralement à l'extrémité (fig. 68, 69). Araignée de l'est des Rocheuses (carte 10) ..... ***longispina* Emerton** (p. 54)

Embolus effilé et courbé prolatéralement à l'extrémité (fig. 72, 73). Araignée de l'ouest des Rocheuses (carte 10) ..... ***idana* Platnick & Shadab** (p. 55)

15(12). Apophyse médiane longue, effilée, s'étendant presque jusqu'à l'extrémité du bulbe génital (fig. 76) ..... ***elizabethae* Gertsch** (p. 57)

Apophyse médiane plus courte, plus épaisse, ne s'étendant pas jusqu'à l'extrémité du bulbe génital (fig. 80, 84, 88) 16

16(15). Apophyse médiane munie de deux crochets (fig. 80, 81); tégula saillant fortement à la base (fig. 81) ..... ***porta* Platnick & Shadab** (p. 59)

Apophyse médiane munie d'un seul crochet (fig. 84, 88); tégula ne saillant pas fortement à la base (fig. 85, 89) 17

17(16). Apophyse tibiale rétrolatérale plutôt large à la base, rétrécissant brusquement jusqu'à une fine extrémité (fig. 85) ..... ***mormon* Gertsch** (p. 60)

Apophyse tibiale rétrolatérale plus effilée à la base, ne rétrécissant pas brusquement (fig. 89, 93) 18

18(17). Embolus visiblement élargi à la base ou près de l'extrémité (fig. 88, 92) 19

Embolus non visiblement élargi à la base (fig. 96, 100) 20

19(18). Canal séminal fortement arqué vers l'extérieur par rapport à la marge prolatérale du bulbe génital (fig. 88). Araignée du sud de l'Alberta, du sud de la Saskatchewan et des régions vers le Sud (carte 14) ..... ***laticeps* Emerton** (p. 62)

Canal séminal faiblement arqué vers l'extérieur par rapport à la marge prolatérale du bulbe génital (fig. 92). Araignée des régions nordiques (carte 14) ..... ***alpina* L. Koch** (p. 64)

20(18). Apophyse tibiale rétrolatérale dont la longueur est d'environ la moitié de celle du tibia palpal (fig. 97) ..... ***coloradensis* Banks** (p. 66)

Apophyse tibiale rétrolatérale dont la longueur est nettement plus petite que la moitié de celle du tibia palpal (fig. 101) .... ***constricta*** **Emerton** (p. 67)

21(1). Épigyne à marge antérieure distincte; marge pouvant être divisée (fig. 26, 98) 22

Épigyne sans marge antérieure (fig. 46, 50, 70) 38

22(21). Marge épigynale antérieure arquée vers l'arrière ou anguleuse à la ligne médiane, ou divisée en deux parties (fig. 26, 38, 98) 23

Marge épigynale antérieure arquée vers l'avant ou anguleuse à la ligne médiane, non divisée (fig. 62, 82, 94) 36

23(22). Marge épigynale antérieure à extrémités anguleuses vers l'arrière (fig. 38) ..... ***longipes*** **Emerton** (p. 39)

Marge épigynale antérieure à extrémités courbées vers l'arrière ou droites 24

24(23). Épigyne pourvue d'une dépression large et peu profonde (fig. 54) ..... ***medica*** **Platnick & Shadab** (p. 46)

Épigyne sans dépression large et peu profonde 25

25(24). Marge épigynale antérieure divisée en deux parties largement séparées (fig. 102) ..... ***constricta*** **Emerton** (p. 67)

Marge épigynale antérieure divisée en parties étroitement séparées ou non divisée 26

26(25). Marge épigynale antérieure s'étendant postérieurement loin le long de la ligne médiane (fig. 74, 75) .... ***idana*** **Platnick & Shadab** (p. 55)

Marge épigynale antérieure s'étendant postérieurement sur une courte distance le long de la ligne médiane, ou ne s'étendant pas postérieurement 27

27(26). Spermathèques s'étendant antérieurement au-delà du niveau de la marge épigynale antérieure (fig. 34, 42, 90) 28

Spermathèques ne s'étendant pas antérieurement au-delà du niveau de la marge épigynale antérieure 30

28(27). Spermathèques fortement convolutées (fig. 35) .... ***riggsi*** **Gertsch** (p. 37)

Spermathèques peu ou pas convolutées (fig. 43, 91) 29

29(28). Spermathèques un peu convolutées (fig. 43) .... ***emertoni*** **Gertsch** (p. 41)

Spermathèques non convolutées (fig. 91) .....
..... ***laticeps*** **Emerton** (p. 62)

30(27). Marge épigynale antérieure dont les extrémités sont fortement courbées postérieurement (fig. 58, 78, 98) 34

Marge épigynale antérieure dont les extrémités ne sont pas fortement courbées postérieurement 31

31(30). Tubes copulateurs longs, s'étendant antérieurement aussi loin que les extrémités antérieures des spermathèques ou presque (fig. 27, 31, 67) 32

Tubes copulateurs plus courts, s'étendant antérieurement sur une courte distance seulement (fig. 87) .....
..... ***mormon*** **Gertsch** (p. 60)

32(31). Spermathèques longues, plutôt effilées (fig. 27, 31) 33

Spermathèques plus courtes, plus épaisses, à peu près en forme de rein (fig. 67) ..... ***gertschi*** **Barrows et Ivie** (p. 52)

33(32). Tubes copulateurs un peu courbés aux extrémités antérieures (fig. 27) ..... ***pulicaria*** **(Sundevall)** (p. 32)

Tubes copulateurs en angles abrupts aux extrémités antérieures (fig. 31) ..... ***tripunctata*** **Holm** (p. 34)

34(30). Marge épigynale antérieure longue, non divisée, dont les extrémités sont courbées peu profondément (fig. 78) .....
..... ***elizabethae*** **Gertsch** (p. 57)

Marge épigynale antérieure plus courte, divisée en deux parties, dont les extrémités sont abruptement courbées (fig. 58, 98) ....
..... 35

35(34). Marge épigynale antérieure épaisse, foncée (fig. 98) .....
..... ***coloradensis*** **Banks** (p. 66)

Marge épigynale antérieure plus effilée, pâle (fig. 58) .....
..... ***utahna*** **Gertsch** (p. 48)

36(22). Marge épigynale antérieure effilée, dont les extrémités ne sont pas courbées postérieurement (fig. 82) .....
..... ***porta*** **Platnick & Shadab** (p. 59)

Marge épigynale antérieure plus épaisse, dont les extrémités sont courbées postérieurement (fig. 62, 94) 37

37(36). Spermathèques courtes, épaisses, s'étendant seulement sur une courte distance antérieurement (fig. 63) .....
..... ***aenea*** **Thorell** (p. 50)

Spermathèques plus longues, s'étendant loin antérieurement (fig. 95) ..... ***alpina*** **L. Koch** (p. 64)

38(21). Spermathèques allongées, courbées (fig. 47, 51). Carapace d'une longueur supérieure à 1,20 mm 39

Spermathèques plus courtes, ovoïdes (fig. 71). Carapace d'une longueur de moins de 1,10 mm ..... ***longispina* Emerton** (p. 54)

39(38). Septum médian large, occupant environ les deux tiers de l'espace entre les spermathèques (fig. 46) ..... ***rossica* Thorell** (p. 43)

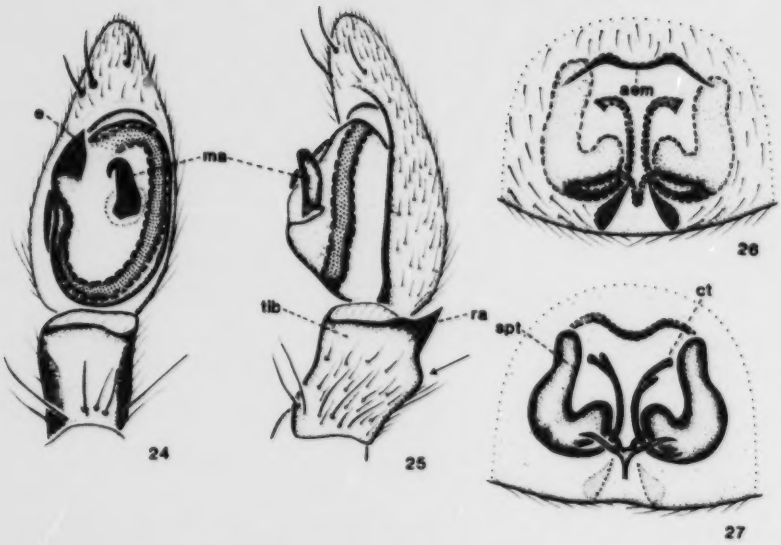
Septum médian plus effilé, occupant le tiers de l'espace entre les spermathèques ou moins du tiers (fig. 50) ..... ***foxi* Gertsch** (p. 45)

Micaria pulicaria (Sundevall)

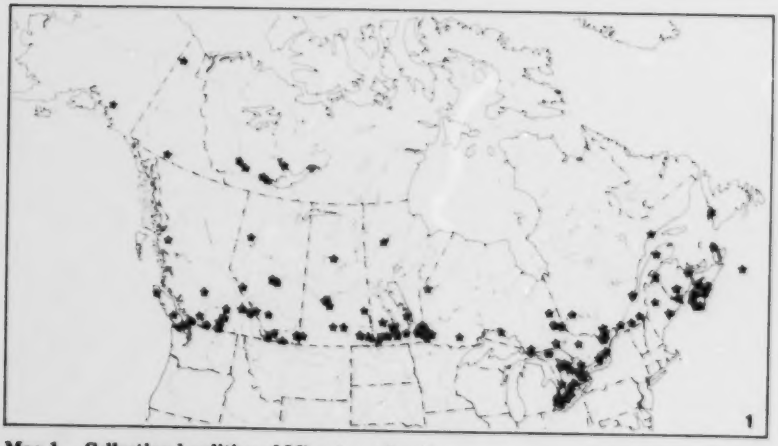
Figs. 24–27; Map 1

Clubiona pulicaria Sundevall, 1831:140.
Drassus lugubris Walckenaer, 1837:624.
Macaria formosa C.L. Koch, 1839:97, fig. 501.
Micaria pulicaria: Westring 1851:47; Wunderlich 1979:252, figs. 3*a*–3*i*, 16*a*–16*f*, 38*a*–38*d*; Platnick and Shadab 1988:7, figs. 2–5.
Micaria montana Emerton, 1890:168, figs. 2, 2*a* (pl. 3); Kaston 1948:401, figs. 1437–1439 (pl. 76), 1441, 1442 (pl. 77).
Micaria perfecta Banks, 1896*a*:59.
Micaria gentilis Banks, 1896*b*:62.
Micaria similis Bosenberg, 1902:285, figs. 418A, 418B (pl. 27).

Male. Total length 3.30 ± 0.52 mm; carapace 1.42 ± 0.24 mm long, 0.99 ± 0.15 mm wide; femur II 0.99 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.04, PLE 0.05, AME–AME 0.05, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.16 long, 0.13 wide at front, 0.13 wide at back. Palpal tibia with dorsal swelling and with short retrolateral apophysis (Fig. 25); embolus short, broad at base, and tapered to sharp point; median apophysis long, stout, somewhat tapered, strongly hooked at tip, and arising approximately midlength on genital bulb (Fig. 24).



Figs. 24–27. Genitalia of *Micaria pulicaria*. 24, 25, palpus of male; 24, ventral view; 25, retrolateral view; 26, 27, epigynum and spermathecae; 26, ventral view; 27, dorsal view. *aem*, anterior epigynal margin; *ct*, copulatory tube; *e*, embolus; *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *spt*, spermatheca; *tib*, tibia.



Map 1. Collection localities of *Micaria pulicaria*.

Female. Total length 3.89 ± 0.34 mm; carapace 1.44 ± 0.09 mm long, 0.98 ± 0.08 mm wide; femur II 0.93 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.05, PME 0.04, PLE 0.06, AME–AME 0.06, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.16 long, 0.12 wide at front, 0.14 wide at back. Epigynum without median septum and with anterior epigynal margin well developed; epigynum arched posteriorly at midline and not divided or strongly curved posteriorly at ends (Fig. 26); copulatory tubes long, slender, curved laterally at tips, and extending anteriorly nearly as far as anterior extremities of spermathecae; spermathecae long, rather slender, curved mesally at posterior ends, and extending anteriorly to level of anterior epigynal margin (Fig. 27).

Comments. Males of *M. pulicaria* are distinguished from those of other Canadian species of *Micaria* by the combination of palpal tibia with dorsal swelling, median apophysis long and arising about midlength on the genital bulb, and embolus short and pointed. Females are distinguished by the combination of anterior epigynal margin well developed and copulatory tubes long, slender, and somewhat curved at tips.

Range. Alaska to Newfoundland, south to California and Texas; Europe, Asia.

Biology. Adults have been collected in Canada from April to November, year round in the southern parts of the range. Specimens have been found in fields, meadows, deciduous and mixed deciduous–coniferous forests, bogs, and fens; on beaches and salt marshes; and in buildings. Elevations of up to 4000 m have been recorded.

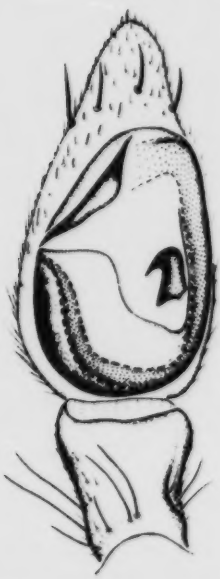
Micaria tripunctata Holm

Figs. 28–31; Map 2

Micaria tripunctata Holm, 1978:68, figs. 1–5; Wunderlich 1979:255, figs. 17*a*–17*c*, 39; Platnick and Shadab 1988:10, figs. 6-9.

Male. Total length 2.63–3.15 mm; carapace 1.18–1.24 mm long, 0.84–0.93 mm wide; femur II 0.81–0.87 mm long (five specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.16 long, 0.13 wide at front, 0.16 wide at back. Palpal tibia with dorsal swelling and with short pointed retrolateral apophysis (Fig. 29); embolus long, rather slender, thickest at midlength (Fig. 28); median apophysis rather short, thick, with large hook at tip, and arising

near midlength of genital bulb (Figs. 28, 29); tegulum rather protruding at base (Fig. 29).



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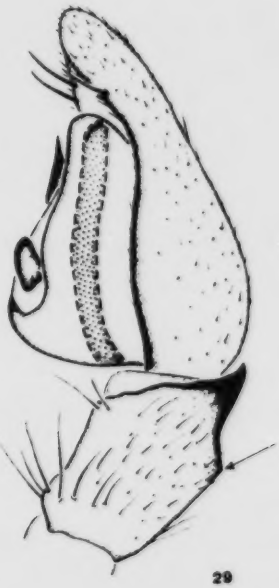

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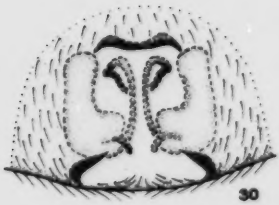

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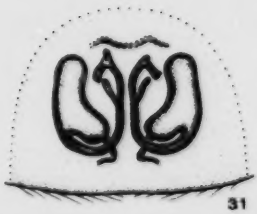


31

Figs. 28–31. Genitalia of *Micaria tripunctata*. 28, 29, palpus of male; 28, ventral view; 29, retrolateral view; 30, 31, epigynum and spermathecae; 30, ventral view; 31, dorsal view.

Female. Total length 3.35, 3.70 mm; carapace 1.19, 1.33 mm long, 0.85, 0.92 mm wide; femur II 0.76, 0.78 mm long (two specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.06, PME 0.06, PLE 0.05, AME–AME 0.03, AME–ALE 0.01, PME–PME 0.04, PME–PLE 0.03, ALE–PLE 0.06; median ocular quadrangle 0.17 long, 0.13 wide at front, 0.16 wide at back. Epigynum without median septum and with anterior margin rather short, undivided, not curved posteriorly at ends (Fig. 30); copulatory tubes long, slender, extending anteriorly nearly to level of anterior epigynal margin, and with tips abruptly angled laterally; spermathecae large, blunt at both ends (Fig. 31).

Comments. Males of *M. tripunctata* are distinguished from those of other Canadian species in the genus by the combination of palpal tibia with dorsal swelling, by median apophysis short, stout, and arising near midlength on the genital bulb, and by embolus long and slender. Females are distinguished by the combination of anterior epigynal margin short and undivided, and copulatory tubes long, slender, and abruptly angled laterally at tips.

Range. Alaska to Manitoba; northern Sweden.

Biology. Adults have been collected from June to August. No habitat data are available.

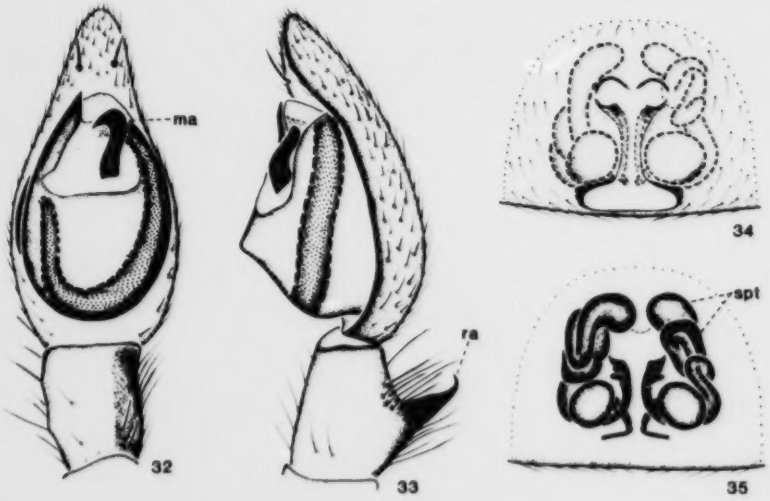
Map 2. Collection localities of *Micaria tripunctata* (•) and *M. riggsi* (★).

Micaria riggsi Gertsch

Figs. 32–35; Map 2

Micaria riggsi Gertsch, 1942:2, fig. 4; Kaston 1948:404, fig. 1451 (pl. 77); Platnick and Shadab 1988:55, figs. 138–141.

Male. Total length 3.35 ± 0.48 mm; carapace 1.54 ± 0.15 mm long, 0.97 ± 0.12 mm wide; femur II 1.00 ± 0.14 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.06, ALE–PLE 0.06; median ocular quadrangle 0.19 long, 0.15 wide at front, 0.16 wide at back. Palpal tibia with retrolateral apophysis arising in basal half of segment; apophysis stout at base, tapered to slender hooked tip (Fig. 33); embolus long, broad, tapered to sharp point (Fig. 32); median apophysis long, stout, strongly hooked, arising distally near midline of genital bulb (Figs. 32, 33); tegulum somewhat protruding near base (Fig. 33).



Figs. 32–35. Genitalia of *Micaria riggsi*. 32, 33, palpus of male; 32, ventral view; 33, retrolateral view; 34, 35, epigynum and spermathecae; 34, ventral view; 35, dorsal view. *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *spt*, spermatheca.

Female. Total length 3.88 ± 0.23 mm; carapace 1.65 ± 0.10 mm long, 1.03 ± 0.07 mm wide; femur II 1.00 ± 0.15 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.04, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.08, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.19 long, 0.13 wide at front, 0.18 wide at back. Epigynum with anterior margin narrowly divided into two arched parts that appear to join copulatory openings in forming paired circles (Fig. 34); copulatory tubes long, slender, fluted at anterior ends; spermathecae long, strongly and irregularly convoluted, extending far anterior of anterior epigynal margin (Fig. 35).

Comments. Males of *M. riggsi* are distinguished from those of the other Canadian species of *Micaria* by the combination of retrolateral tibial apophysis arising on basal half of tibia and median apophysis arising near midline of genital bulb. Females are distinguished by the spermathecae, which are strongly convoluted and extend anterior of anterior epigynal margin.

Range. Southern British Columbia to Massachusetts, south to Arizona and Tennessee.

Biology. Mature males have been taken from late April to early September, mature females from mid May to late August. Specimens have been collected by pitfall traps in meadows, grassy fields, and sand dunes, and in sagebrush, lichens, and buildings, at elevations of up to 3660 m.

Micaria longipes Emerton

Figs. 36–39; Map 3

Micaria longipes Emerton, 1890:167, figs. 1, 1*a*–1*h* (pl. 3); Kaston 1948:400, figs. 1416, 1417 (pl. 75), 1430, 1431 (pl. 76), 2125 (pl. 142); Platnick and Shadab 1988:49, figs. 122–125.

Micaria formicoides Banks, 1892:14, fig. 51.

Micaria alberta Gertsch, 1942:1, fig. 1.

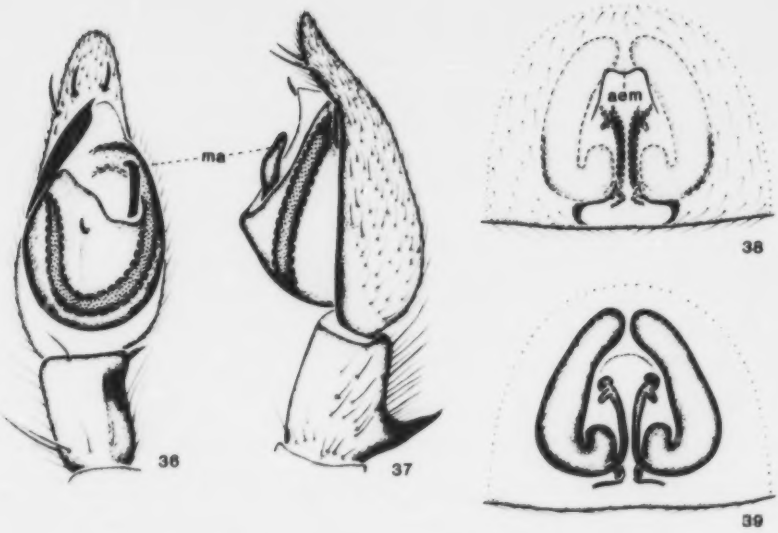
Male. Total length 4.22 ± 0.55 mm; carapace 1.97 ± 0.24 mm long, 1.13 ± 0.14 mm wide; femur II 1.30 ± 0.16 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.05, PME 0.05, PLE 0.06, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.12, PME–PLE 0.09, ALE–PLE 0.09; median ocular quadrangle 0.21 long, 0.19 wide at front, 0.22 wide at back. Palpal tibia with retrolateral apophysis situated at base of segment (Fig. 37); embolus rather long, broad, abruptly narrowed near tip (Fig. 36); median apophysis long, slender, somewhat hooked at tip, and arising near retrolateral margin of genital bulb (Figs. 36, 37).

Female. Total length 4.94 ± 0.53 mm; carapace 2.05 ± 0.20 mm long, 1.19 ± 0.10 mm wide; femur II 1.24 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.07, AME–ALE 0.04, PME–PME 0.12, PME–PLE 0.10, ALE–PLE 0.10; median ocular quadrangle 0.23 long, 0.19 wide at front, 0.22 wide at back. Epigynum with short slender anterior margin; anterior margins with ends angled far posteriorly (Fig. 38); copulatory tubes long, slender, with small lobe near anterior end; spermathecae long, thick, angled anteriorly at posterior end, and nearly touching in front of anterior epigynal margin (Fig. 39).

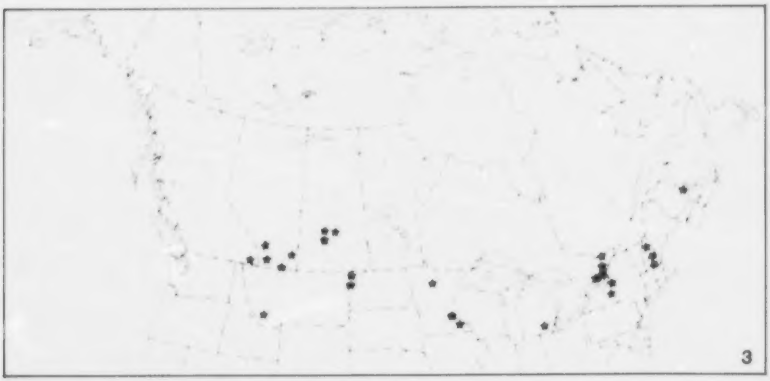
Comments. Males of *M. longipes* are distinguished from those of other Canadian species of *Micaria* by the combination of retrolateral tibial apophysis arising at the base of the tibia and by the median apophysis long, slender, minutely hooked, and arising near retrolateral margin of genital bulb. Females are distinguished by the anterior epigynal margin, which is undivided and which has its ends angled far posteriorly.

Range. British Columbia to New Brunswick, south to Arizona and Mexico.

Biology. Mature males have been taken from early June to early October, mature females from late April to late November. Specimens have been collected in grasslands, sand and pine barrens, and various crops, at elevations of up to 2330 m.



Figs. 36–39. Genitalia of *Micaria longipes*. 36, 37, palpus of male; 36, ventral view; 37, retrolateral view; 38, 39, epigynum and spermathecae; 38, ventral view; 39, dorsal view. *aem*, anterior epigynal margin; *ma*, median apophysis.



Map 3. Collection localities of *Micaria longipes*.

Micaria emertoni Gertsch

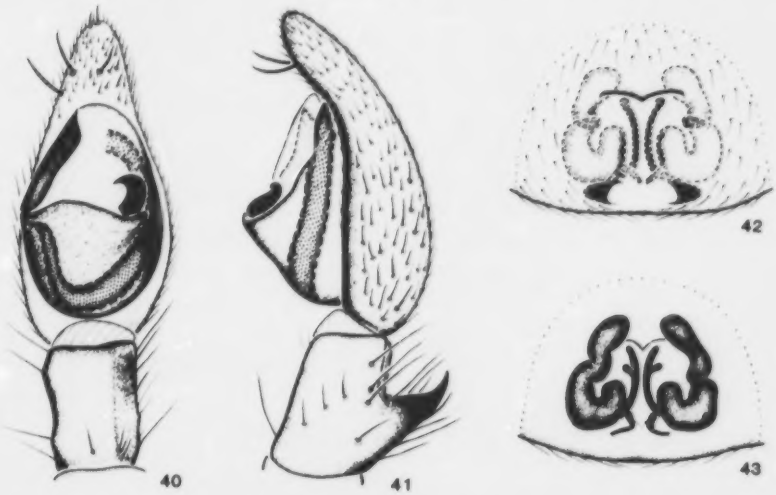
Figs. 40–43; Map 4

Micaria quinquenotata Emerton, 1909:215, figs. 1, 1*a*–1*e* (pl. 10). Specific name preoccupied in genus *Micaria*.

Micaria emertoni Gertsch, 1935:16 (new name for *M. quinquenotata* Emerton); Kaston 1948:403, figs. 1420, 1421 (pl. 75), 1440 (pl. 76); Platnick and Shadab 1988:56, figs. 142–145.

Micaria apacheana Gertsch, 1942:2, fig. 3.

Male. Total length 2.94 ± 0.35 mm; carapace 1.38 ± 0.18 mm long, 0.93 ± 0.12 mm wide; femur II 0.87 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.04, PME 0.04, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.16 long, 0.13 wide at front, 0.15 wide at back. Palpal tibia with retrolateral apophysis thick at base, tapered to fine point, and arising basally (Fig. 41); embolus long, broad, abruptly narrowed near tip (Fig. 40); median apophysis short, thick, strongly hooked at tip, and arising at midlength of genital bulb and near retrolateral margin (Figs. 40, 41).



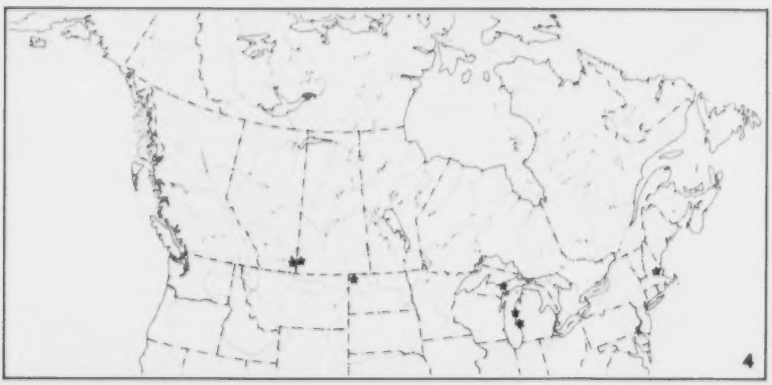
Figs. 40–43. Genitalia of *Micaria emertoni*. 40, 41, palpus of male; 40, ventral view; 41, retrolateral view; 42, 43, epigynum and spermathecae; 42, ventral view. 43, dorsal view.

Female. Total length 3.37 ± 0.55 mm; carapace 1.36 ± 0.20 mm long, 0.90 ± 0.15 mm wide; femur II 0.81 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.09, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.17 long, 0.15 wide at front, 0.17 wide at back. Epigynum with short slender undivided anterior margin and with distinct posterior sockets (Fig. 42); copulatory tubes long, slender, somewhat curved, with small lobe near anterior end; spermathecae long, rather thick, angled or curved anteriorly at posterior ends; spermathecae extending anterior of anterior epigynal margin and somewhat convoluted (Fig. 43).

Comments. Males of *M. emertoni* are distinguished from those of other Canadian species in the genus by the combination of retrolateral tibial apophysis arising on basal half of tibia and median apophysis short, stout, and arising near retrolateral margin of genital bulb. Females are distinguished by the spermathecae, which are somewhat convoluted and extend anterior of the anterior epigynal margin.

Range. Southern Alberta to Massachussetts, south to Arizona and northern Mexico.

Biology. Mature males have been taken from early June to mid December, mature females from mid March to early October. Specimens have been collected on beaches and sand dunes, under stones and surface debris on the ground, in pinyon pine and juniper stands, and in buildings.



Map 4. Collection localities of *Micaria emertoni*.

Micaria rossica Thorell

Figs. 44–47; Map 5

Micaria rossica Thorell, 1875*a*:112; Wunderlich 1979:308, figs. 70*a*–70*c*; Platnick and Shadab 1988:27, figs. 58–61.

Micaria scenica Simon, 1878:17; Wunderlich 1979:286, figs. 33*a*–33*e*, 57*a*–57*e*.

Micaria albocincta Banks, 1901:573.

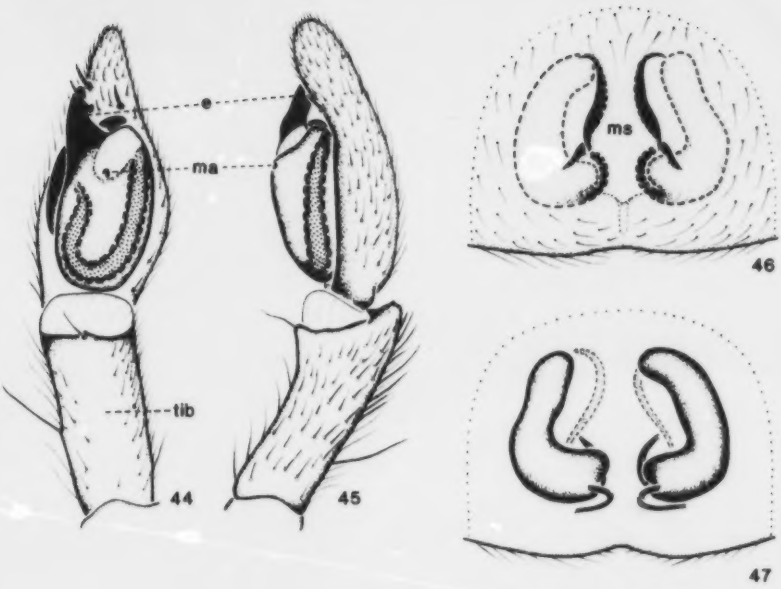
Male. Total length 3.91 ± 0.39 mm; carapace 1.84 ± 0.15 mm long, 1.22 ± 0.11 mm wide; femur II 1.27 ± 0.06 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.10, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.21 long, 0.15 wide at front, 0.20 wide at back. Palpal tibia approximately three times as long as wide, with minute retrolateral apophysis (Fig. 45); embolus thick, blunt, or obliquely truncate at tip, and extending distally beyond tip of genital bulb; median apophysis minute or absent, situated near midline of genital bulb (Figs. 44, 45).

Female. Total length 4.75 ± 0.47 mm; carapace 1.84 ± 0.14 mm long, 1.21 ± 0.10 mm wide; femur II 1.28 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.06, PLE 0.06, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.07, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.22 long, 0.15 wide at front, 0.19 wide at back. Epigynum without anterior margin and with broad median septum occupying approximately two-thirds of space between spermathecae (Fig. 46); copulatory tubes short, slender, curved; spermathecae long, rather thick, curved mesally at posterior ends (Fig. 47).

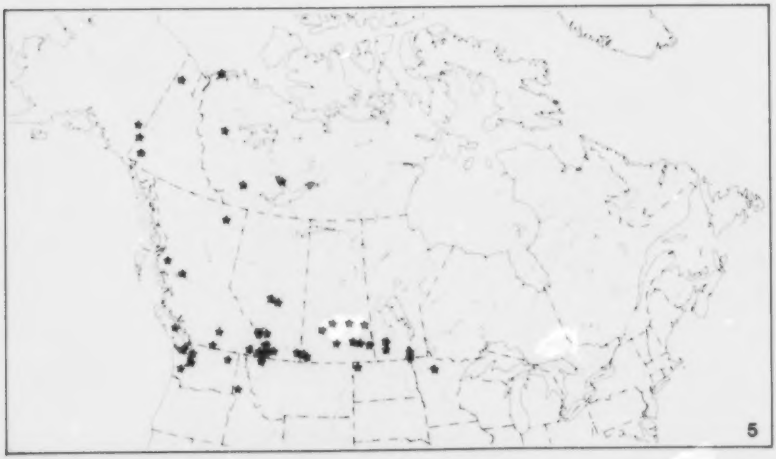
Comments. Males of *M. rossica* are distinguished from those of other Canadian species in the genus by the combination of palpal tibia long, median apophysis minute or absent, and embolus extending distally beyond tip of genital bulb. Females are distinguished by the broad median septum. Wunderlich (1979) gives additional uncertain European synonyms.

Range. Alaska to Manitoba, south to California and New Mexico; Asia.

Biology. Mature males have been taken from late April to mid August, mature females from late April to mid September. Specimens have been collected in plant litter or among stones in aspen, lodgepole pine, and spruce forests; and in alfalfa fields, sagebrush, salt marshes, and tall grass prairies, at elevations of up to 4160 m.



Figs. 44–47. Genitalia of *Micaria rossica*. 44, 45, palpus of male; 44, ventral view; 45, retrolateral view; 46, 47, epigynum and spermathecae; 46, ventral view; 47, dorsal view. *e*, embolus; *ma*, median apophysis; *ms*, median septum; *tib*, tibia.



Map 5. Collection localities of *Micaria rossica*.

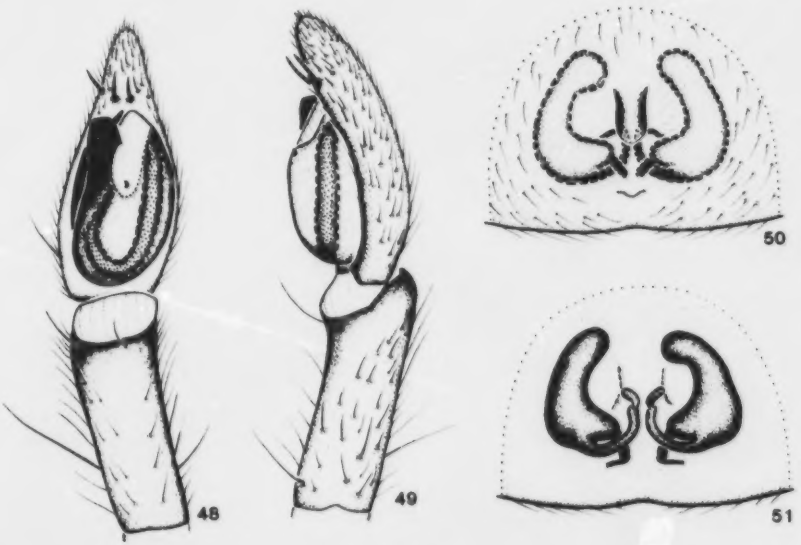
Micaria foxi Gertsch

Figs. 48–51; Map 6

Micaria foxi Gertsch, 1933:5, fig. 2; Platnick and Shadab 1988:29, figs. 62-65.

Micaria altana Gertsch, 1933:6, fig. 5.

Male. Total length 3.24 ± 0.44 mm; carapace 1.58 ± 0.19 mm long, 1.02 ± 0.14 mm wide; femur II 1.25 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.07, PME 0.06, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.19 long, 0.17 wide at front, 0.18 wide at back. Palpal tibia approximately three times as long as wide, with small retrolateral apophysis (Fig. 49); embolus short, broad, angular at tip, and not extending distally beyond tip of genital bulb; median apophysis minute or absent, situated near midline of genital bulb (Figs. 48, 49).



Figs. 48–51. Genitalia of *Micaria foxi*. 48, 49, palpus of male; 48, ventral view; 49, retrolateral view; 50, 51, epigynum and spermathecae; 50, ventral view; 51, dorsal view.

Female. Total length 3.94 ± 0.48 mm; carapace 1.75 ± 0.12 mm long, 1.11 ± 0.09 mm wide; femur II 1.23 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME

0.04, ALE 0.06, PME 0.06, PLE 0.06, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.07, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.20 long, 0.14 wide at front, 0.19 wide at back. Epigynum without anterior margin and with median septum occupying approximately one-third of space between spermathecae (Fig. 50); copulatory tubes short, slender, curved; spermathecae elongate, rather thick, curved mesally at posterior ends (Fig. 51).

Comments. Males of *M. foxi* are distinguished from those of other Canadian species of *Micaria* by the combination of palpal tibia long, median apophysis minute or absent, and embolus not extending distally beyond tip of genital bulb. Females are distinguished by the slender median septum.

Range. Interior British Columbia and southern Alberta, south to California and New Mexico.

Biology. Mature males and females have been taken from April to August. Specimens were collected in sagebrush, under stones, and from low shrubs.

Micaria medica Platnick & Shadab

Figs. 52–55; Map 6

Micaria medica Platnick and Shadab, 1988:33, figs. 74–77.

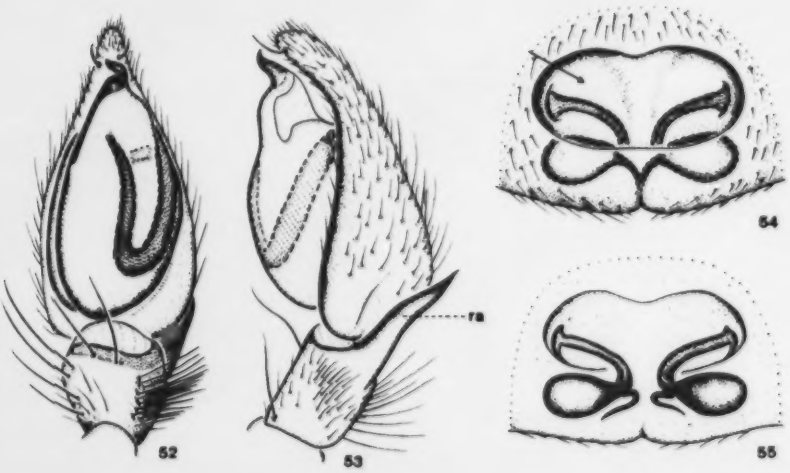
Male. Total length 2.48, 2.50 mm; carapace 0.94, 1.13 mm long, 0.68, 0.87 mm wide; femur II 0.71, 0.82 mm long (two specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.04, PLE 0.05, AME–AME 0.03, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.15 long, 0.11 wide at front, 0.14 wide at back. Palpal tibia with large stout tapered retrolateral apophysis; apophysis approximately as long as tibia (Fig. 53); embolus short, sinuous, directed prolaterally at tip; median apophysis absent (Figs. 52, 53).

Female. Total length 3.00 mm; carapace 1.09 mm long, 0.88 mm wide; femur II 0.75 mm long (one specimen measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.06, PME 0.04, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.04, ALE–PLE 0.04; median ocular quadrangle 0.15 long, 0.11 wide at front, 0.13 wide at back. Epigynum with broad slender anterior margin and with broad shallow depression (Fig. 54); copulatory tubes long, rather slender, extending posteromesally; spermathecae small, ovoid (Fig. 55).

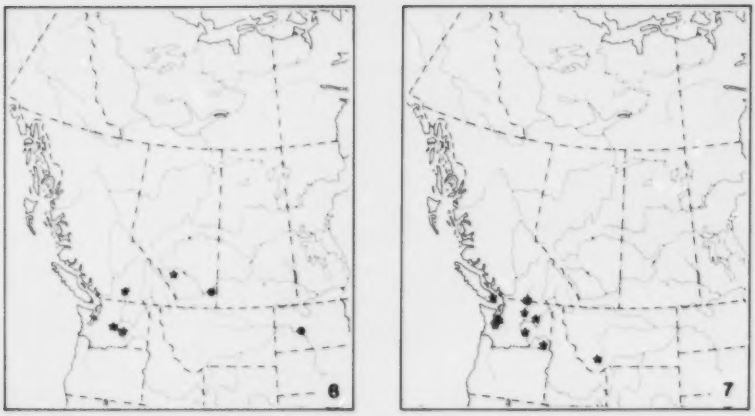
Comments. Males of *M. medica* are distinguished from those of other Canadian species in the genus by the combination of retrolateral tibial apophysis long and median apophysis absent. Females are distinguished by the broad shallow depression in the epigynum.

Range. Southern Alberta, North Dakota, and Colorado.

Biology. Mature males and a female were taken in late July or early August. The only recorded habitats are high prairies in North Dakota and an aspen–lodgepole pine forest at 2900 m elevation in the Sawatch Mountains of Colorado.



Figs. 52–55. Genitalia of *Micaria medica*. 52, 53, palpus of male; 52, ventral view; 53, retrolateral view; 54, 55, epigynum and spermathecae; 54, ventral view; 55, dorsal view.



Maps 6,7. Collection localities of *Micaria* spp. 6, *M. foxi* (★) and *M. medica* (●); 7, *M. utahna*.

Micaria utahna Gertsch

Figs. 56–59; Map 7

Micaria utahna Gertsch, 1933:3, fig. 1; Platnick and Shadab 1988:24, figs. 50–53.

Micaria salina Gertsch, 1942:5, fig. 5.

Male. Total length 2.93 ± 0.42 mm; carapace 1.38 ± 0.20 mm long, 0.95 ± 0.14 mm wide; femur II 0.92 ± 0.18 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.03, PME–PME 0.08, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.17 long, 0.14 wide at front, 0.18 wide at back. Palpal tibia approximately twice as long as wide, with moderately large tapered straight retrolateral apophysis (Fig. 57); embolus moderately long, with slender tip; tip extended ventrally then distally in partial curl (Figs. 56, 57); median apophysis absent.

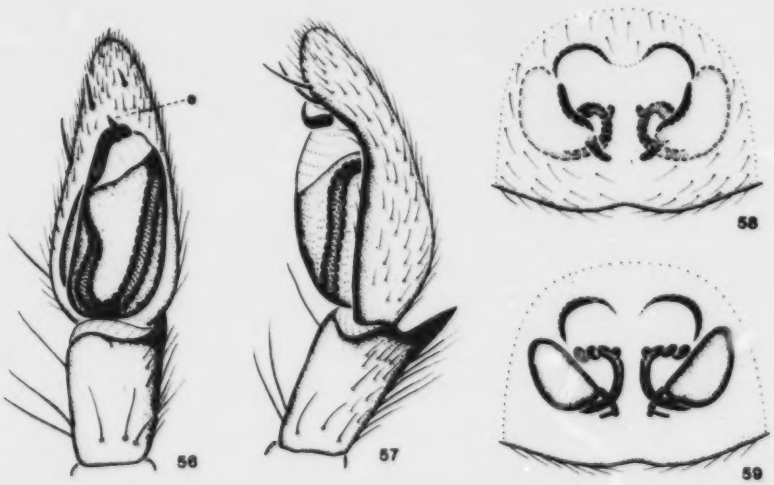
Female. Total length 3.30 ± 0.45 mm; carapace 1.35 ± 0.12 mm long, 0.91 ± 0.08 mm wide; femur II 0.88 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.04, PME 0.04, PLE 0.05, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.15 long, 0.13 wide at front, 0.15 wide at back. Epigynum with anterior margin divided into two strongly arched parts and with oblique lateral margins (Fig. 58); copulatory tubes long, slender, curved, forming

several minute coils at anterior end; spermathecae rather large, oblique, somewhat kidney-shaped (Fig. 59).

Comments. Males of *M. utahna* are distinguished from those of other Canadian species by the curled embolus tip. Females are distinguished by the combination of anterior epigynal margin divided and copulatory tubes forming a series of small coils at the anterior end.

Range. Southern British Columbia to Montana, south to California and Utah.

Biology. Mature males have been taken from late April to early September, mature females from early March to early September. Specimens have been collected in grasslands, sagebrush, chaparral, oak forests, and bogs, at elevations of up to 2860 m.



Figs. 56–59. Genitalia of *Micaria utahna*. 56, 57, palpus of male; 56, ventral view; 57, retrolateral view; 58, 59, epigynum and spermathecae; 58, ventral view; 59, dorsal view. *e*, embolus.

Micaria aenea Thorell

Figs. 60–63; Map 8

Micaria aenea Thorell, 1871:175; Wunderlich 1979:271, figs. 5, 26*a*–26*d*, 48*a*, 48*b*; Platnick and Shadab 1988:30, figs. 66–69.
Micaria foveata Strand, 1900:33.
Micaria norvegica Strand, 1904:13.
Micaria vandeli Denis, 1950:83, figs. 6–8*a*.
Micaria tetonia Levi and Levi, 1951:228, figs. 21, 22.

Male. Total length 3.20 ± 0.22 mm; carapace 1.47 ± 0.08 mm long, 1.14 ± 0.06 mm wide; femur II 1.15 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.06, PLE 0.05, AME–AME 0.06, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.16 long, 0.14 wide at front, 0.18 wide at back. Palpal tibia approximately twice as long as wide, with moderately long stout pointed retrolateral apophysis (Fig. 61); embolus long, rather slender, straight, extending somewhat beyond tip of genital bulb; genital bulb with tip minutely angled ventrally (Figs. 60, 61); median apophysis minute, situated distally near midline.

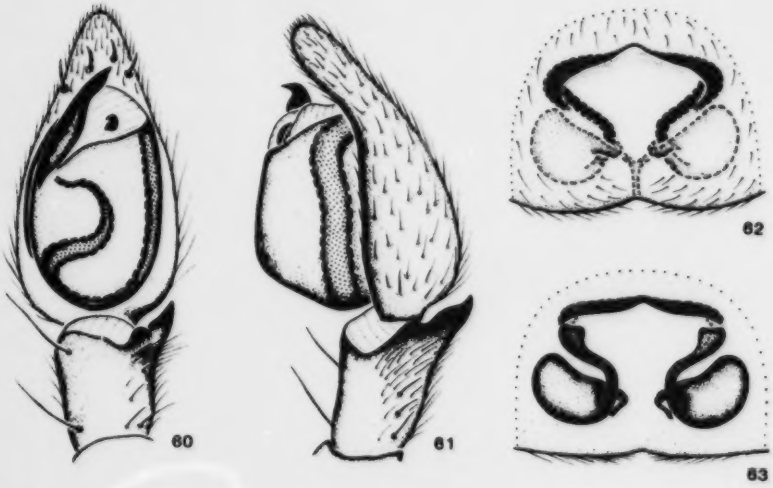
Female. Total length 3.96 ± 0.42 mm; carapace 1.52 ± 0.04 mm long, 1.20 ± 0.03 mm wide; femur II 1.15 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.06, PLE 0.05, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.07, PME–PLE 0.05, ALE–PLE 0.08; median ocular quadrangle 0.18 long, 0.13 wide at front, 0.20 wide at back. Epigynum with anterior margin angled anteriorly at midline and thickened and arched posteriorly at ends (Fig. 62); copulatory tubes rather long, slender, broadened at anterior end; spermathecae short, oblique, kidney-shaped (Fig. 63).

Comments. Males of *M. aenea* are distinguished from those of other Canadian species in the genus by the combination of retrolateral tibial apophysis moderately long, median apophysis minute, and embolus extending beyond tip of genital bulb. Females are distinguished by the combination of anterior epigynal margin angled anteriorly at midline and arched posteriorly at ends, and spermathecae kidney-shaped. The epigynal area is often filled with a hardened plug of resin-like material.

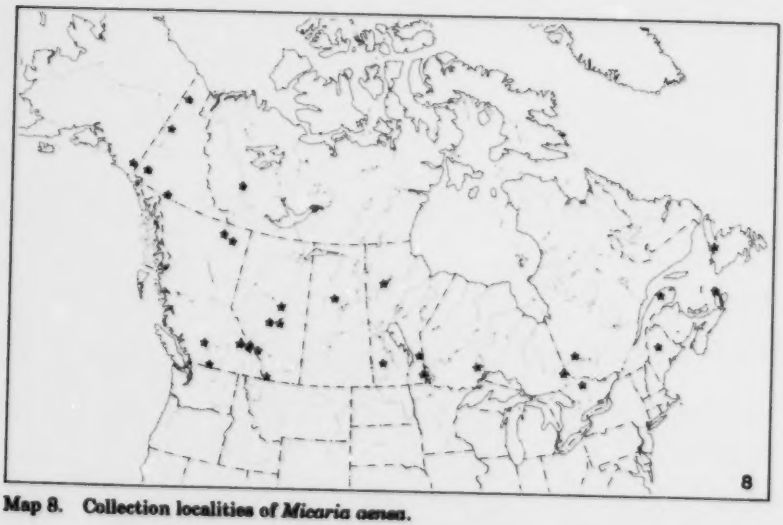
Range. Alaska to Newfoundland, south to Utah, Colorado, and Maine; Europe.

Biology. Mature males have been taken from May to July, mature females from June to August. Specimens have been collected in pitfall

traps in grass within or at the margins of fir, spruce, and lodgepole pine forests; and in litter or under stones in meadows, bogs, and fens, at elevations of up to 3800 m.



Figs. 60–63. Genitalia of *Micaria aenea*. 60, 61, palpus of male; 60, ventral view; 61, retrolateral view; 62, 63, epigynum and spermathecae; 62, ventral view; 63, dorsal view.



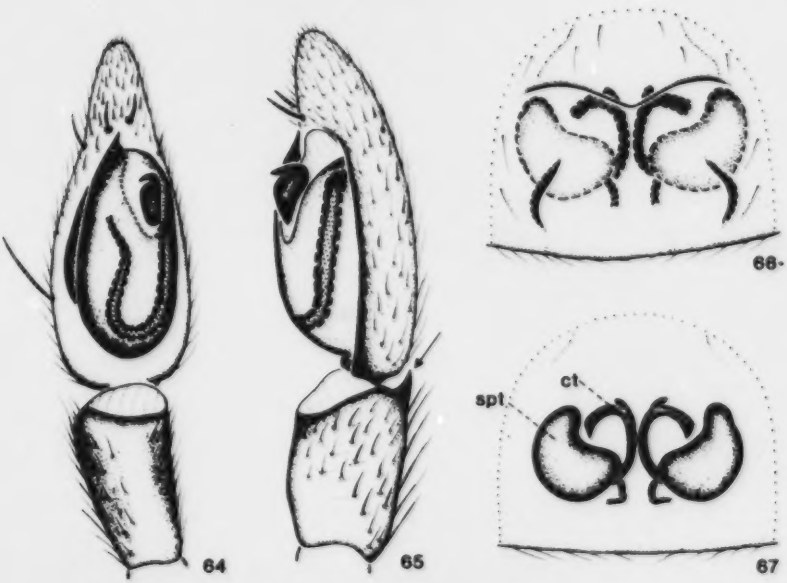
Map 8. Collection localities of *Micaria aenea*.

Micaria gertschi Barrows & Ivie

Figs. 64–67; Map 9

Micaria gertschi Barrows and Ivie, 1942:21, figs. 8, 9; Platnick and Shadab 1988:12, figs. 14–17.

Male. Total length 2.91 ± 0.39 mm; carapace 1.33 ± 0.17 mm long, 0.85 ± 0.11 mm wide; femur II 0.90 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.06, ALE–PLE 0.06; median ocular quadrangle 0.17 long, 0.13 wide at front, 0.15 wide at back. Palpal tibia rather short and thick, with minute pointed retrolateral apophysis situated at tip of segment (Fig. 65); embolus broad, with tip abruptly narrowed and extending somewhat beyond tip of genital bulb (Figs. 64, 65); median apophysis with thick base and with slender hooked tip, and situated near retrolateral margin of genital bulb.



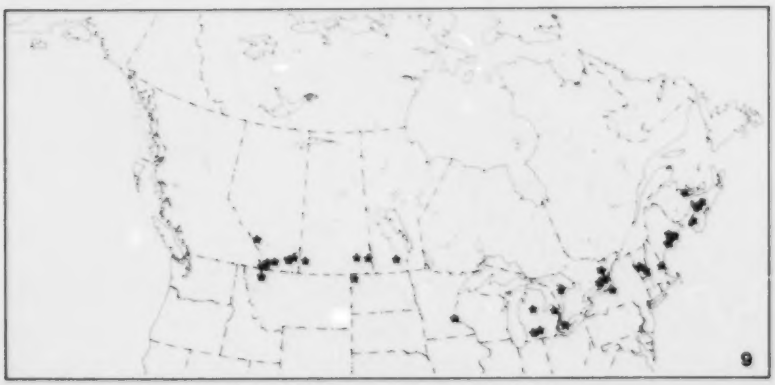
Figs. 64–67. Genitalia of *Micaria gertschi*. 64, 65, palpus of male; 64, ventral view; 65, retrolateral view; 66, 67, epigynum and spermathecae; 66, ventral view; 67, dorsal view. *ct*, copulatory tube; *spt*, spermatheca.

Female. Total length 3.46 ± 0.48 mm; carapace 1.46 ± 0.08 mm long, 0.92 ± 0.05 mm wide; femur II 0.97 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.15 long, 0.13 wide at front, 0.16 wide at back. Epigynum with long slender undivided anterior margin and with short arched lateral margins; anterior margin angled posteriorly at midline but not extending posteriorly at ends (Fig. 66); copulatory tubes rather long, slender, arched laterally at anterior end, and almost touching; spermathecae rather small, somewhat kidney-shaped (Fig. 67).

Comments. Males of *M. gertschi* are distinguished from those of other Canadian species by the combination of retrolateral tibial apophysis minute and situated at tip of tibia, median apophysis well developed and situated near retrolateral margin of genital bulb, and embolus abruptly narrowed near tip. Females are distinguished by the combination of anterior epigynal margin undivided and angled posteriorly at midline, and copulatory tubes long, strongly arched at anterior ends, and almost touching.

Range. Alberta to Nova Scotia, south to Arizona, Texas, and Connecticut.

Biology. Mature males have been taken from late April to late August, mature females from late April to late September. Specimens have been collected along salt marshes, dunes, sand quarries, and beaches, in prairies, pastures, and fens, under stones, and associated with aspen, lodgepole pine, and sage, at elevations of up to 3000 m.



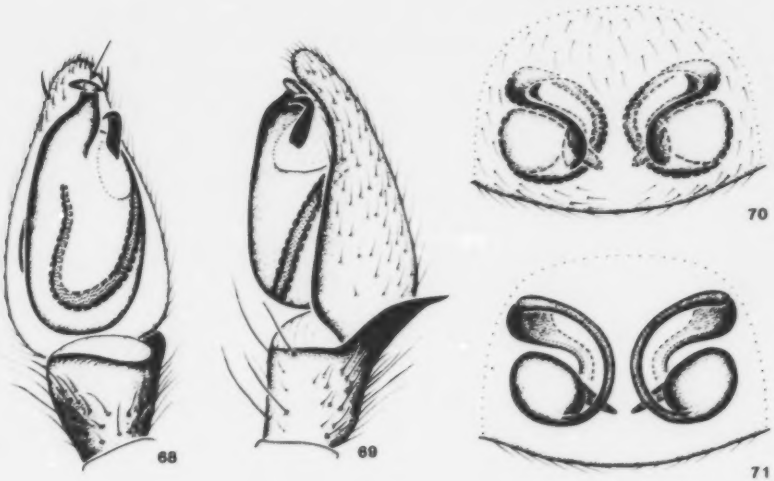
Map 9. Collection localities of *Micaria gertschi*.

Micaria longispina Emerton

Figs. 68–71; Map 10

Micaria longispina Emerton, 1911:403, figs. 6, 6*a*–6*b* (pl. 5); Kaston 1948:403, figs. 1422 (pl. 75), 2124 (pl. 142); Platnick and Shadab 1988:34, figs. 78–81.

Male. Total length 2.05 ± 0.21 mm; carapace 0.86 ± 0.05 mm long, 0.63 ± 0.05 mm wide; femur II 0.52 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.03, AME–ALE 0.01, PME–PME 0.04, PME–PLE 0.04, ALE–PLE 0.04; median ocular quadrangle 0.12 long, 0.09 wide at front, 0.12 wide at back. Palpal tibia short, thick; retrolateral apophysis long, stout, tapered, distally curved (Fig. 69); embolus broad, extending distally beyond tip of genital bulb; embolus flattened and ventrally bent at tip (Figs. 68, 69); median apophysis rather long, thick, hooked at tip, and situated distally near retrolateral margin of genital bulb (Figs. 68, 69).



Figs. 68–71. Genitalia of *Micaria longispina*. 68, 69, palpus of male; 68, ventral view; 69, retrolateral view; 70, 71, epigynum and spermathecae; 70, ventral view; 71, dorsal view.

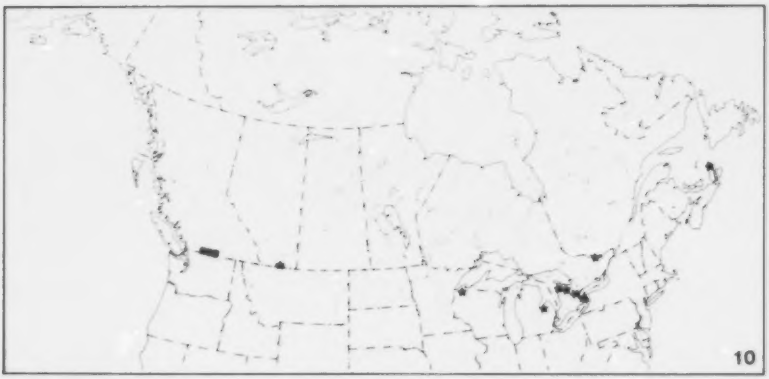
Female. Total length 2.38 ± 0.48 mm; carapace 0.84 ± 0.05 mm long, 0.65 ± 0.07 mm wide; femur II 0.51 ± 0.03 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME

0.04, ALE 0.05, PME 0.04, PLE 0.05, AME–AME 0.03, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.04, ALE–PLE 0.03; median ocular quadrangle 0.13 long, 0.10 wide at front, 0.13 wide at back. Epigynum lacking median septum, lacking anterior margin, with distinct curved lateral margins (Fig. 70); copulatory tubes long, rather slender, strongly curved; spermathecae rather small, oblique, ovoid (Fig. 71).

Comments. Males of *M. longispina* are distinguished from those of other Canadian species by the expanded and ventrally directed tip of the embolus. Females are distinguished by the lack of either a median septum or an anterior epigynal margin.

Range. Alberta to Nova Scotia, south to Arkansas and Florida.

Biology. Mature males have been taken from March to July, mature females from March to August. Specimens have been collected in pitfall traps in deciduous and mixed forests, bogs, and under debris on a beach.



Map 10. Collection localities of *Micaria longispina* (★) and *M. idana* (■).

Micaria idana Platnick & Shadab

Figs. 72–75; Map 10

Micaria idana Platnick and Shadab, 1988:32, figs. 70–73.

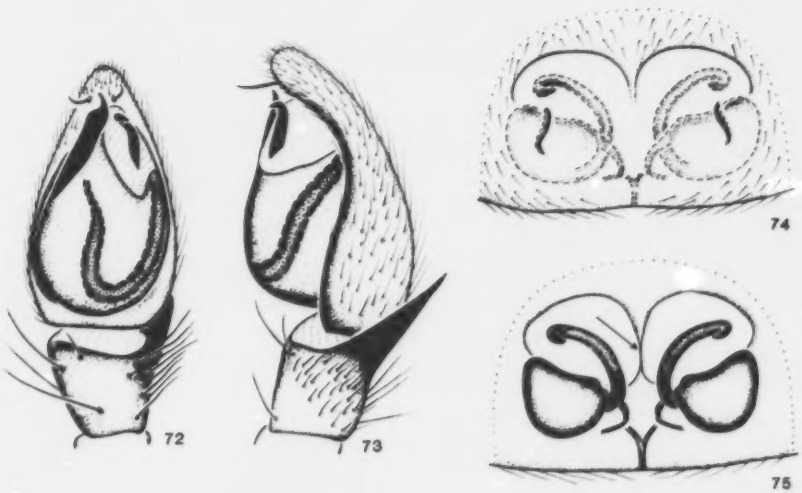
Male. Total length 1.55–2.34 mm; carapace 0.79–1.00 mm long, 0.56–0.85 mm wide; femur II 0.52–0.76 mm long (four specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.04, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.03, ALE–PLE 0.04; median ocular

quadrangle 0.14 long, 0.12 wide at front, 0.15 wide at back. Palpal tibia short, thick, with long tapered retrolateral apophysis (Fig. 73); embolus long, rather broad, with tip slender and arched prolaterally; median apophysis long, slender, with small hook at tip, and situated distally near retrolateral margin of genital bulb (Figs. 72, 73).

Female. Total length 2.34, 3.04 mm; carapace 1.00, 1.13 mm long, 0.82, 0.83 mm wide; femur II 0.68, 0.79 mm long (two specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.03, ALE–PLE 0.03; median ocular quadrangle 0.14 long, 0.13 wide at front, 0.15 wide at back. Epigynum with anterior margin long, slender, strongly arched, narrowly divided and posteriorly angled at midline (Fig. 74); copulatory tubes long, slender, curved, extending far laterally at anterior ends; spermathcae small, oblique, approximately kidney-shaped (Fig. 75).

Comments. Males of *M. idana* are distinguished from those of other Canadian species by the slender prolaterally curved embolus tip. Females are distinguished by the anterior epigynal margin, which is slender, divided, and strongly arched and is posteriorly angled at the midline.

Range. British Columbia, south to California.



Figs. 72–75. Genitalia of *Micaria idana*. 72, 73, palpus of male; 72, ventral view; 73, retrolateral view; 74, 75, epigynum and spermathecae; 74, ventral view; 75, dorsal view.

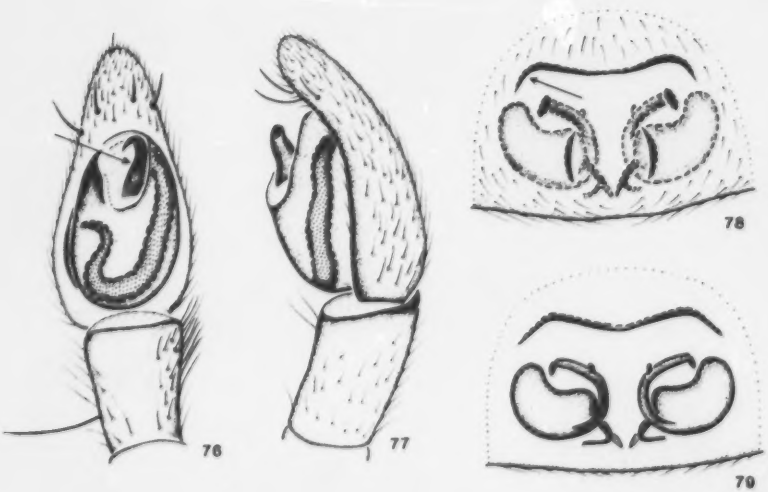
Biology. Mature males were taken in June or July, mature females in August or September. One of the specimens was collected under a stone at 2760 m elevation, another in a pitfall trap in talus at 1520 m.

Micaria elizabethae Gertsch

Figs. 76–79; Map 11

Micaria elizabethae Gertsch, 1942:3, figs. 10–12; Kaston 1948:402, figs. 1443–1445 (pl. 77); Platnick and Shadab 1988:11, figs. 10–13.

Male. Total length 2.30 ± 0.20 mm; carapace 1.04 ± 0.10 mm long, 0.66 ± 0.08 mm wide; femur II 0.60 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.13 long, 0.10 wide at front, 0.13 wide at back. Palpal tibia approximately twice as long as wide, with minute pointed retrolateral apophysis (Fig. 77); embolus rather short, broad, narrowed to fine tip, and not extending to tip of genital bulb (Fig. 76); median apophysis long, rather thick, with long hook at tip; median apophysis situated near midline of and extending nearly to tip of genital bulb (Figs. 76, 77).



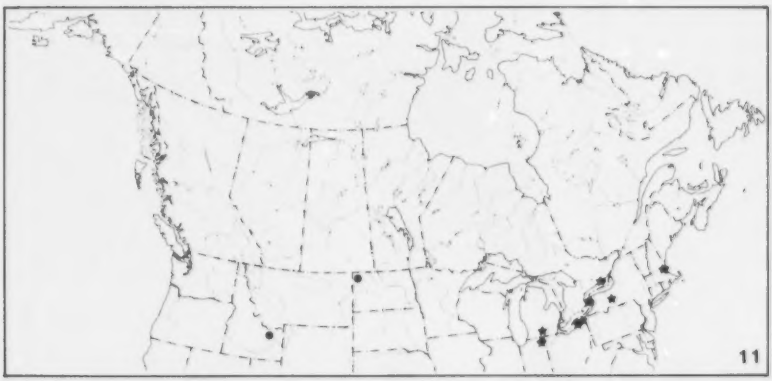
Figs. 76–79. Genitalia of *Micaria elizabethae*. 76, 77, palpus of male; 76, ventral view; 77, retrolateral view; 78, 79, epigynum and spermathecae; 78, ventral view; 79, dorsal view.

Female. Total length 2.59 ± 0.24 mm; carapace 1.06 ± 0.07 mm long, 0.66 ± 0.07 mm wide; femur II 0.58 ± 0.03 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.04, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.14 long, 0.10 wide at front, 0.13 wide at back. Epigynum with anterior margin long, slender, undivided, somewhat arched posteriorly at midline, and arched posteriorly at ends (Fig. 78); copulatory tubes long, slender, well separated, strongly and smoothly curved laterally at anterior ends; spermathecae rather large, oblique, approximately kidney-shaped (Fig. 79).

Comments. Males of *M. elizabethae* are distinguished from those of other Canadian species by the combination of retrolateral tibial apophysis minute and median apophysis long and stout, arising near midline of and extending nearly to tip of genital bulb. Females are distinguished by the combination of anterior epigynal margin undivided and broadly arched posteriorly at midline, and copulatory tubes long, smoothly curved, and well separated.

Range. Ontario to Massachusetts, south to Missouri, Arkansas, and North Carolina.

Biology. Mature males have been taken from March to September, mature females from April to December. Specimens have been collected by pitfall traps in prairies, abandoned fields, orchards, marshes, swamps, and a deciduous forest.



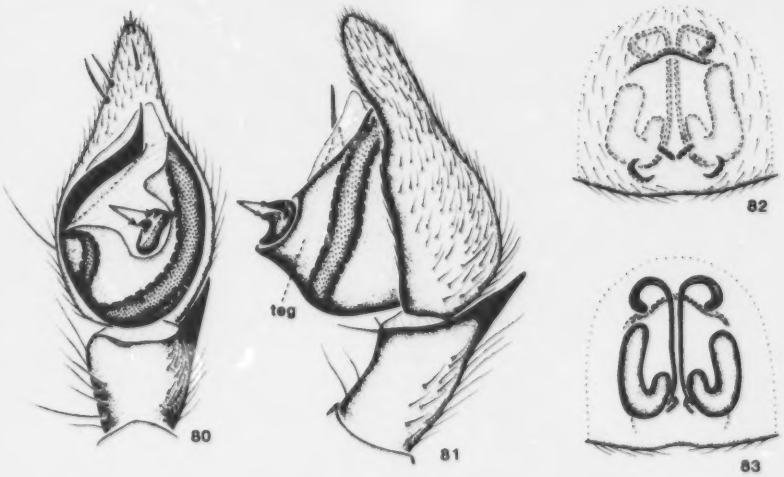
Map 11. Collection localities of *Micaria elizabethae* (★) and *M. porta* (●).

Micaria porta Platnick & Shadab

Figs. 80–83; Map 11

Micaria porta Platnick and Shadab, 1988:46, figs. 114–117.

Male. Total length 3.23 ± 0.29 mm; carapace 1.46 ± 0.21 mm long, 0.93 ± 0.12 mm wide; femur II 0.94 ± 0.14 m long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.10, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.22 long, 0.15 wide at front, 0.20 wide at back. Palpal tibia rather short and stout, with long tapered retrolateral apophysis (Fig. 81); embolus long, broad, tapered to fine tip; tip extending to distal end of genital bulb; median apophysis short, thick, with 2 hooks, and situated near middle of genital bulb (Figs. 80, 81); genital bulb conspicuously protruding ventrally (Fig. 81).



Figs. 80–83. Genitalia of *Micaria porta*. 80, 81, palpus of male; 80, ventral view; 81, retrolateral view; 82, 83, epigynum and spermathecae; 82, ventral view; 83, dorsal view. *teg*, tegulum.

Female. Total length 3.67 ± 0.49 mm; carapace 1.48 ± 0.08 mm long, 0.92 ± 0.07 mm wide; femur II 0.88 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.05, PLE 0.06, AME–AME 0.06, AME–ALE 0.03, PME–PME 0.09, PME–PLE 0.05, ALE–PLE 0.09; median ocular

quadrangle 0.22 long, 0.18 wide at front, 0.19 wide at back. Epigynum with anterior margin short, slender, anteriorly arched at midline, and with paired sockets posteriorly (Fig. 82); copulatory tubes long, extremely slender, extending anterior of anterior epigynal margin, and strongly curled at anterior ends; spermathecae thick, with posterior ends curled anteromesally (Fig. 83).

Comments. Males of *M. porta* are distinguished from other Canadian species by the possession of 2 hooks on the median apophysis. Females are distinguished by the combination of anterior epigynal margin arched anteriorly at midline and copulatory tubes unusually long and slender.

Range. Idaho and North Dakota, south to northern Mexico.

Biology. Mature males and females have been taken from June to November. Specimens have been collected in alfalfa fields and in association with yucca, mesquite, allthorn, and pinyon pine.

Micaria mormon Gertsch

Figs. 84–87; Map 12

Micaria mormon Gertsch, 1935:17, figs. 41–43; Platnick and Shadab 1988:17, figs. 26–29.

Male. Total length 2.63 ± 0.27 mm; carapace 1.19 ± 0.12 mm long, 0.89 ± 0.10 mm wide; femur II 0.92 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.06, PLE 0.05, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.18 long, 0.16 wide at front, 0.16 wide at back. Palpal tibia approximately twice as long as wide, with retrolateral apophysis short, broad, abruptly tapered to fine tip (Fig. 85); embolus long, moderately broad, curved, abruptly tapered to fine tip; tip extending beyond tip of genital bulb; median apophysis short, broad, with small hook, and situated near midline of genital bulb (Figs. 84, 85).

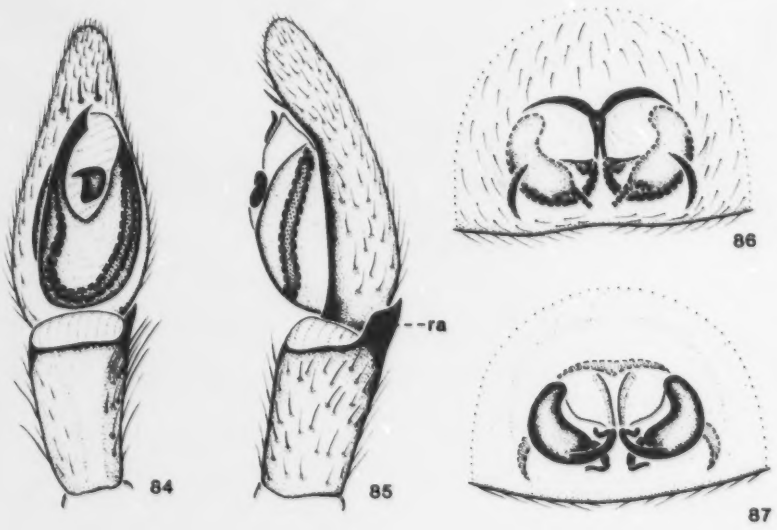
Female. Total length 2.99 ± 0.42 mm; carapace 1.25 ± 0.09 mm long, 0.97 ± 0.08 mm wide; femur II 0.93 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.07, PLE 0.07, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.21 long, 0.17 wide at front, 0.20 wide at back. Epigynum with anterior margin long, thick, posteriorly angled at midline, with distinct median ridge and with well-separated posterior sockets (Fig. 86); copulatory

tubes short, slender, angled laterally at anterior ends; spermathecae thick, somewhat kidney-shaped, extending anterior of anterior epigynal margin (Fig. 87).

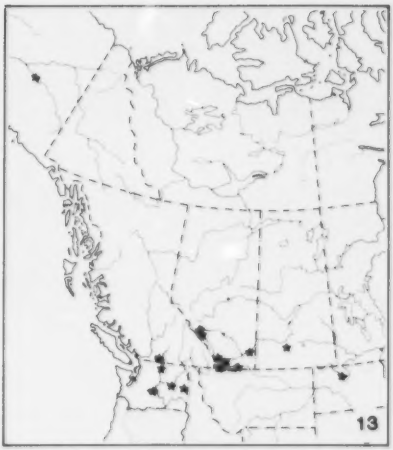
Comments. Males of *M. mormon* are distinguished from those of other Canadian species by the combination of retrolateral tibial apophysis broad and abruptly tapered at tip and median apophysis short, stout, and situated near midline of genital bulb. Females are distinguished by their short spermathecae and short copulatory tubes.

Range. Alberta and Saskatchewan, south to northern Mexico.

Biology. Mature males have been taken from March to October, mature females from April to October. Specimens have been collected by pitfall traps in prairies, pinyon pine forests, and sagebrush and in association with juniper, nolina, yucca, allthorn, mesquite, and lakeshore debris.



Figs. 84–87. Genitalia of *Micaria mormon*. 84, 85, palpus of male; 84, ventral view; 85, retrolateral view; 86, 87, epigynum and spermathecae; 86, ventral view; 87, dorsal view. *ra*, retrolateral tibial apophysis.



Maps 12, 13. Collection localities of *Micaria* spp. 12, *M. mormon*; 13, *M. coloradensis*.

Micaria laticeps Emerton

Figs. 88–91; Map 14

Micaria laticeps Emerton, 1909:214, figs. 4, 4*a*–4*c* (pl. 10); Kaston 1948:402, figs. 1446–1450, 1450*a*, (pl. 77); Platnick and Shadab 1988:19, figs. 34–37.

Micaria multimaculata Kaston, 1938*a*:182, figs. 18–23.

Male. Total length 2.64 ± 0.47 mm; carapace 1.29 ± 0.16 mm long, 0.79 ± 0.09 mm wide; femur II 0.70 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.05, AME–ALE 0.03, PME–PME 0.07, PME–PLE 0.07, ALE–PLE 0.05; median ocular quadrangle 0.13 long, 0.11 wide at front, 0.15 wide at back. Palpal tibia rather short, thick, with short slender pointed retrolateral apophysis (Fig. 89); embolus large, triangular, conspicuously broadened at base, and extending approximately to tip of genital bulb (Fig. 88); median apophysis short, thick, with large hook at tip, and situated near midline of genital bulb (Figs. 88, 89).

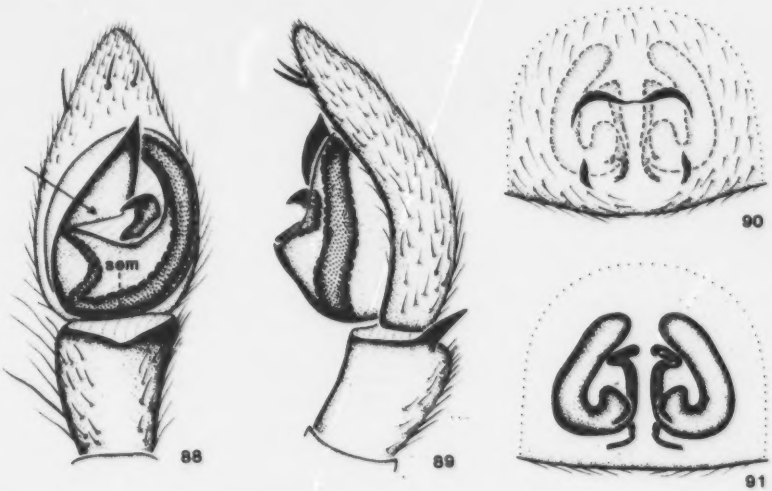
Female. Total length 2.84 ± 0.31 mm; carapace 1.26 ± 0.09 mm long, 0.78 ± 0.08 mm wide; femur II 0.63 ± 0.06 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.04, PME 0.05, PLE 0.04, AME–AME 0.04, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.07, ALE–PLE 0.05; median ocular quadrangle 0.14 long, 0.12 wide at front, 0.16 wide at back. Epigynum with

anterior margin long, undivided, arched posteriorly at midline and at ends; epigynum with small lateral margins posteriorly (Fig. 90); copulatory tubes long, slender, abruptly angled mesally at anterior ends; spermathecae long, thick, with posterior ends curled anteromesally and with anterior ends extending far anterior of anterior epigynal margin (Fig. 91).

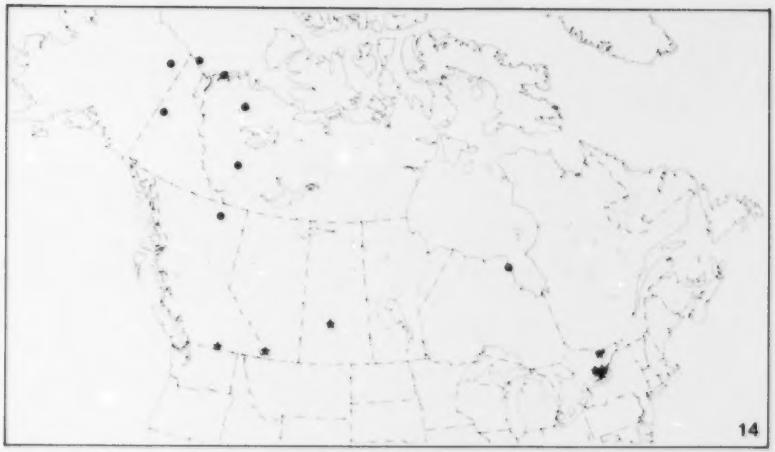
Comments. Males of *M. laticeps* are distinguished from those of other Canadian species by the large triangular embolus. Females are distinguished by the combination of anterior epigynal margin long and undivided, and spermathecae extending far anterior of anterior epigynal margin.

Range. Idaho and southern British Columbia to southern Ontario, south to Utah, Arkansas, and Connecticut.

Biology. Mature males have been taken from April to September, mature females from May to September. Specimens have been collected in pitfall traps in grasslands, and under stones and leaf litter at the margins of deciduous forests.



Figs. 88–91. Genitalia of *Micaria laticeps*. 88, 89, palpus of male; 88, ventral view; 89, retrolateral view; 90, 91, epigynum and spermathecae; 90, ventral view; 91, dorsal view. *sem*, seminal duct.



Map 14. Collection localities of *Micaria laticeps* (★) and *M. alpina* (●).

Micaria alpina L. Koch

Figs. 92–95; Map 14

Micaria alpina L. Koch, 1872:313; Wunderlich 1979:281, figs. 31*a*–31*d*, 54*a*–54*d*; Platnick and Shadab 1988:18, figs. 30–33.
Micaria breviuscula Simon, 1878:25.

Male. Total length 3.23 ± 0.19 mm; carapace 1.49 ± 0.10 mm long, 1.01 ± 0.08 mm wide; femur II 0.97 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.07, AME–ALE 0.04, PME–PME 0.08, PME–PLE 0.08, ALE–PLE 0.07; median ocular quadrangle 0.17 long, 0.15 wide at front, 0.18 wide at back. Palpal tibia short, thick, with long tapered retrolateral apophysis (Fig. 93); embolus long, with angular thickening at base of tapered terminal part; median apophysis situated near midline of genital bulb; median apophysis rather short, thick, with small distal hook (Figs. 92, 93).

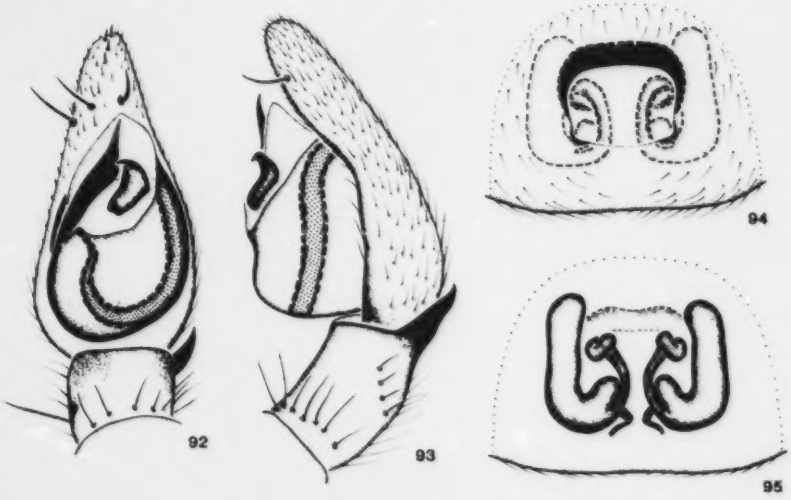
Female. Total length 3.13–4.07 mm; carapace 1.35–1.54 mm long, 0.86–1.10 mm wide; femur II 0.79–0.95 mm long (eight specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.05, PLE 0.04, AME–AME 0.06, AME–ALE 0.03, PME–PME 0.07, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.17 long, 0.16 wide at front, 0.17 wide at back. Epigynum with anterior margin greatly thickened, essentially straight, with ends strongly curved posteriorly (Fig. 94); copulatory tubes long, slender, curved, with

tight curl at anterior ends; spermathecae long, thick, with posterior ends curved anteromesally and anterior ends extending anterior of anterior epigynal margin (Fig. 95).

Comments. Males of *M. alpina* are distinguished from those of other Canadian species by the broadened embolus. Females are distinguished by the combination of anterior epigynal margin long, greatly thickened, and curved posteriorly at ends, and spermathecae extending anterior of anterior epigynal margin.

Range. Alaska to northern Ontario, south to northern British Columbia; Europe.

Biology. Mature males and females have been taken in June and July. Specimens were collected on dry hillsides covered with spruce and dwarf birch, in moss above treeline, and on open tundra.



Figs. 92–95. Genitalia of *Micaria alpina*. 92, 93, palpus of male; 92, ventral view; 93, retrolateral view; 94, 95, epigynum and spermathecae; 94, ventral view; 95, dorsal view.

Micaria coloradensis Banks

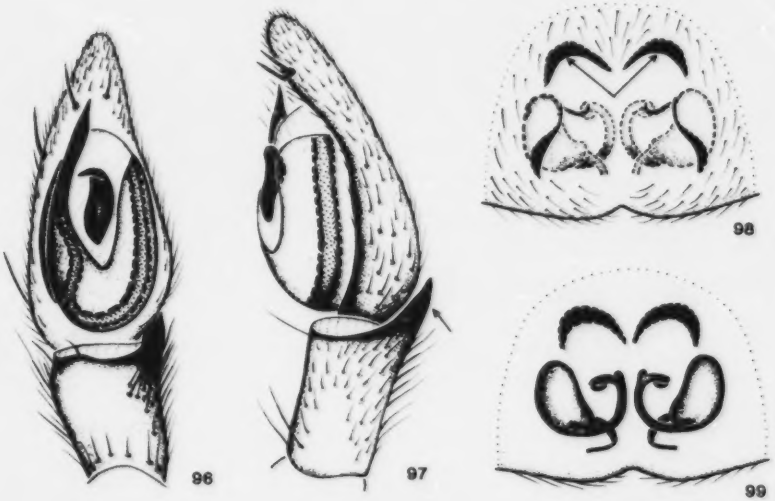
Figs. 96–99; Map 13

Micaria coloradensis Banks, 1896*a*:58; Platnick and Shadab 1988:15, figs. 22–25.

Micaria rowani Gertsch, 1942:4, figs. 17, 18.

Micaria jacksonia Levi and Levi, 1951:228, fig. 26.

Male. Total length 3.18 ± 0.32 mm; carapace 1.47 ± 0.13 mm long, 1.02 ± 0.12 mm wide; femur II 1.00 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.04, AME–ALE 0.01, PME–PME 0.08, PME–PLE 0.03, ALE–PLE 0.07; median ocular quadrangle 0.17 long, 0.12 wide at front, 0.17 wide at back. Palpal tibia approximately twice as long as wide, with moderately long smoothly tapered retrolateral apophysis (Fig. 97); embolus long, rather broad throughout its length except at tip, and extending beyond tip of genital bulb (Figs. 96, 97); seminal duct gently arched away from prolateral margin of genital bulb; median apophysis long, broad, situated near middle of genital bulb (Figs. 96, 97).



Figs. 96–99. Genitalia of *Micaria coloradensis*. 96, 97, palpus of male; 96, ventral view; 97, retrolateral view; 98, 99, epigynum and spermathecae; 98, ventral view; 99, dorsal view.

Female. Total length 3.42 ± 0.34 mm; carapace 1.40 ± 0.13 mm long, 1.00 ± 0.10 mm wide; femur II 0.98 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.04, PME 0.04, PLE 0.05, AME–AME 0.03, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.15 long, 0.11 wide at front, 0.14 wide at back. Epigynum with anterior margin divided into two broad arched parts and with copulatory openings situated at approximately midlength (Fig. 98); copulatory tubes long, slender, curved, with lateral extensions at anterior ends; spermathecae rather small, oblique, kidney-shaped (Fig. 99).

Comments. Males of *M. coloradensis* are distinguished from those of other Canadian species by the combination of retrolateral tibial apophysis smoothly tapered, median apophysis large and situated at middle of genital bulb, and seminal duct gently arched away from prolateral margin of genital bulb. Females are distinguished by the combination of anterior epigynal margin divided into two arched parts and copulatory tubes with lateral extensions.

Range. Alaska to Saskatchewan, south to California, Colorado, and South Dakota.

Biology. Mature males have been taken from late April to mid July, mature females from early May to late August. Specimens have been collected in pitfall traps in grasslands, sagebrush, and talus slopes, and in aspen, oak, and spruce–fir forests, at elevations of up to 3600 m.

Micaria constricta Emerton

Figs. 100–103; Map 15

Micaria constricta Emerton, 1894:414, figs. 5, 5*a*–5*c* (pl. 2); Platnick and Shadab 1988:14, figs. 18–21.

Micaria eltonii Jackson, 1922:166, figs. 1, 2.

Micaria hesperella Gertsch and Jellison, 1939:11 (new name for *M. constricta* Emerton, mistakenly thought to be preoccupied).

Micaria canadensis Roewer, 1951:446 (new name for *M. constricta* Emerton, mistakenly thought to be preoccupied).

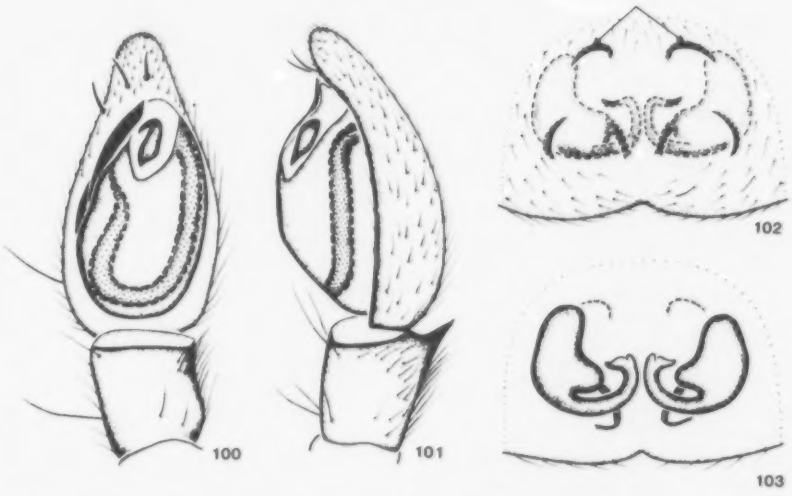
Micaria eltoni: Wunderlich 1979:279, figs. 30*a*–30*d*, 52*a*–52*c*.

Male. Total length 3.36 ± 0.41 mm; carapace 1.42 ± 0.15 mm long, 1.06 ± 0.12 mm wide; femur II 1.03 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.06, PME 0.06, PLE 0.06, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.16 long, 0.15 wide at front, 0.18 wide at back. Palpal tibia

short, broad, with small pointed retrolateral apophysis (Fig. 101); embolus long, nearly straight, rather narrow, abruptly narrowed at tip, and extending to tip of genital bulb (Fig. 100); median apophysis short, moderately stout, situated distally near midline of genital bulb (Figs. 100, 101).

Female. Total length 3.59 ± 0.36 mm; carapace 1.44 ± 0.11 mm long, 1.02 ± 0.10 mm wide; femur II 0.94 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.06, ALE–PLE 0.05; median ocular quadrangle 0.15 long, 0.12 wide at front, 0.15 wide at back. Epigynum with anterior margin divided into two widely separated arches and with paired lateral margins posteriorly (Fig. 102); copulatory tubes long, rather slender, curved, with lateral extensions at anterior ends; spermathecae large, ovoid, with mesal prominence at posterior end (Fig. 103).

Comments. Males of *M. constricta* are distinguished from those of other Canadian species by the combination of retrolateral tibial apophysis short and pointed, and median apophysis moderately stout and situated distally near midline of genital bulb. Females are distinguished by the anterior epigynal margin, which is divided into two widely separated parts.



Figs. 100–103. Genitalia of *Micaria constricta*. 100, 101, palpus of male; 100, ventral view; 101, retrolateral view; 102, 103, epigynum and spermathecae; 102, ventral view; 103, dorsal view.

Range. Yukon Territory to Baffin Island and Labrador, south to California, Colorado, and New Hampshire; Spitsbergen, Norway.

Biology. Mature males have been taken from early May to early October, mature females from mid June to early October. Specimens have been collected by pitfall traps or under stones in meadows, talus slopes, and moss, and in aspen, lodgepole pine, bristlecone pine, and spruce–fir forests, as well as in alpine tundra at elevations up to 4170 m.

Map 15. Collection localities of *Micaria constricta*.

Genus *Zelotes* Gistel

Spiders of the genus *Zelotes* possess shiny dark brown carapaces and legs and a darker abdomen. They live mainly in litter or under stones and other objects on the ground, and although mainly nocturnal they are occasionally seen darting across paths and forest clearings in sunlight.

A few members of the genus apparently have been transported abroad by humans. For example, populations of *Z. reformans* Chamberlin have been recorded in Peru and in Hawaii; as the closest relatives of the species are all from the Old World, even the U.S. population may be introduced. Also, two Mediterranean species, *Z. nilicola* (O. Pickard-Cambridge) and *Z. tenuis* (L. Koch), the latter of which has often been reported under the junior synonyms *Z. pallidus* (O. Pickard-Cambridge) and *Z. circumspectus* (Simon), are now represented in the American southwest; *Z. nilicola* is often found in buildings, orchards, and agricultural fields.

Finally, the widespread North American *Z. puritanus* Chamberlin apparently began to appear in central Europe during the late 1970s.

Description. Total length 1.8–12.6 mm. Carapace usually dark brown to blackish, with darker reticulations, with several long dark setae at margins of posterior declivity; carapace highest at level of dorsal groove or approximately uniform in height between dorsal groove and posterior row of eyes. From above, anterior row of eyes recurved and posterior row straight (Fig. 9); from front, anterior row of eyes straight and posterior row procurved; posterior median eyes irregularly triangular, separated from each other and from posterior lateral eyes by half their maximum width or more, smaller than, equal to, or slightly larger than posterior lateral eyes; median ocular quadrangle usually longer than wide, wider at back than at front. Chelicerae usually with 1 denticle and 3 teeth on promargin and with 1 denticle and 1 tooth on retromargin. Palp-coxal lobes rectangular or longer than wide. Legs typically with macrosetae as follows: femora I, II d1-1-0, p0-0-1, III, IV d1-1-0, p0-1-1, r0-1-1; patella III r0-1-0; tibiae III p1-1-1, v2-2-2, r0-1-1, IV p1-1-1, v2-2-2, r1-1-1; basitarsi I, II v2-0-0, III p1-2-2, v2-2-0, r1-1-2, IV p1-2-2, v2-2-0, r1-2-2; segments dark brown with tarsi somewhat paler; tarsi (at least I and II) with scopulae and with sparse claw tufts; trochanters not notched; basitarsi III and IV with preening comb (as in Figs. 20, 21). Abdomen dark gray to black, covered with fine dense recumbent setae; male with shiny brown scutum anteriorly; anterior spinnerets largest, separated at bases by more than their width. Palpus of male (Figs. 104, 136, 148) with stout pointed retrolateral tibial apophysis, with ledge-like terminal apophysis (sometimes joined dorsally to embolar base), with large embolar base (bearing projection and embolus), with flattened hooked median apophysis, and with intercalary sclerite. Epigynum (Figs. 106, 134, 138) usually with distinct groove-like anterior and lateral margins and often with groove-like posterior margin; copulatory tubes slender, curved, sinuous or complexly coiled, usually with one or more pairs of short blind ducts; spermathecae round or elongate, situated posteriorly.

Comments. Males of *Zelotes* spp. are distinguished from those of the other Canadian gnaphosid genera by the combined presence of a preening comb on basitarsi III and IV and an intercalary sclerite in the male palpus. Females are distinguished by the combined presence of a preening comb and small and only slightly separated posterior median eyes.

Nearly 300 species of *Zelotes* have been cataloged, but the actual number is unknown, as revisions have not been published outside North America and Europe. Fifty-six species have been recorded in North America (Platnick and Shadab 1983). Twelve are represented in Canada and Alaska.

Key to species of *Zelotes*

1. Male 2

   Female 13

2(1). Embolus with terminal part extending distally, lying within curve of cymbium (retrolateral view, Figs. 105, 121, 133) 3

   Embolus with terminal part extending generally basally (or if distally then shorter and thicker, as in Fig. 149), lying on or near median apophysis (retrolateral view, Figs. 137, 141, 145) 10

3(2). Embolar base with distal margin essentially straight (ventral view, Figs. 104, 108, 112) 4

   Embolar base with distal margin curved or angular or bluntly rounded (Figs. 116, 120, 124) 6

4(3). Terminal apophysis small, pointed (Fig. 104) ..... ***fratris* Chamberlin** (p. 77)

   Terminal apophysis larger, approximately triangular or rectangular (Figs. 108, 112) 5

5(4). Embolar projection extending over embolus (Fig. 108). Carapace width usually more than 1.65 mm ..... ***tuobus* Chamberlin** (p. 79)

   Embolar process not extending over embolus (Fig. 112). Carapace width usually less than 1.65 mm ..... ***sula* Lowrie & Gertsch** (p. 80)

6(3). Embolar projection extending over embolus (Fig. 116) ..... ***rainier* Platnick & Shadab** (p. 82)

   Embolar projection not extending over embolus 7

7(6). Embolar base with long distal extension (Fig. 120) ..... ***hentzi* Barrows** (p. 84)

   Embolar base with shorter distal extension (Figs. 124, 128, 132) 8

8(7). Embolar projection finely pointed (Fig. 124) ..... ***lasalanus* Chamberlin** (p. 86)

   Embolar projection bluntly pointed or rounded (Figs. 128, 132) 9

9(8). Embolar projection bluntly pointed (Fig. 128). Spider occurring in eastern Canada (Map 19) ..... ***pullus* (Bryant)** (p. 87)

Embolar projection rounded (Fig. 132). Spider occurring in Washington State and possibly in southern British Columbia (Map 20) ..... ***josephine* Platnick & Shadab** (p. 89)

10(2). Terminal apophysis with distal margin convex (Fig. 136) ..... ***duplex* Chamberlin** (p. 91)

Terminal apophysis with distal margin straighter (Figs. 140, 144, 148) 11

11(10). Palpus with retrolateral tibial apophysis distinctly longer than tibia (Fig. 141) ..... ***exiguoides* Platnick & Shadab** (p. 92)

Palpus with retrolateral tibial apophysis approximately as long as tibia (Figs. 145, 149) 12

12(11). Median apophysis with two points (Fig. 145). Carapace width less than 0.80 mm ..... ***laccus* (Barrows)** (p. 93)

Median apophysis with single point (Fig. 149). Carapace width more than 1.20 mm ..... ***puritanus* Chamberlin** (p. 96)

13(1). Lateral and posterior epigynal margins together enclosing plate; plate with posteriorly directed point at midline (Figs. 106, 122, 134) 14

Lateral and posterior epigynal margins together enclosing flask-shaped plate (Figs. 138, 150); plate, if otherwise in shape, lacking posteriorly directed point (Figs. 142, 146) 21

14(13). Plate enclosed by lateral and posterior epigynal margins and generally extending anteriorly (Fig. 134); median epigynal ducts large, bulbous (Fig. 135) ..... ***josephine* Platnick & Shadab** (p. 89)

Plate enclosed by lateral and posterior epigynal margins and extending posteriorly (Figs. 106, 122, 130); median epigynal ducts smaller, not bulbous (Figs. 107, 123, 131) 15

15(14). Median epigynal ducts in open coil (Figs. 123, 127, 131) 16

Median epigynal ducts straight or somewhat curved (Figs. 107, 115, 119) 18

16(15). Paramedian epigynal ducts thick, arising at curve of copulatory tube (Fig. 131) ..... ***pullus* (Bryant)** (p. 87)

Paramedian epigynal ducts more slender, arising along transverse part of copulatory tube (Figs. 123, 127) 17

17(16). Lateral epigynal margins broad (Fig. 122) ..... ***hentzi* Barrows** (p. 84)

Lateral epigynal margins more slender (Fig. 126) ..... ***lasalanus* Chamberlin** (p. 86)

18(15). Median epigynal ducts minute (Fig. 119), with ends angled anteriorly (Fig. 118) ..... ***rainier* Platnick & Shadab** (p. 82)

Median epigynal ducts larger, with ends angled laterally or not angled (Figs. 106, 107, 111, 115) 19

19(18). Median epigynal ducts thick throughout their length (Fig. 107) ..... ***fratris* Chamberlin** (p. 77)

Median epigynal ducts slender at base, thicker distally (Figs. 111, 115) 20

20(19). Median epigynal ducts angular at tips (Fig. 115). Carapace width usually less than 1.75 mm ..... ***sula* Lowrie & Gertsch** (p. 80)

Median epigynal ducts rounded at tips (Fig. 111). Carapace width usually more than 1.75 mm ..... ***tuobus* Chamberlin** (p. 79)

21(13). Anterior epigynal margin represented by pair of narrowly separated grooves; lateral epigynal margins elongated; epigynum with series of transverse ridges (Fig. 138) ..... ***duplex* Chamberlin** (p. 91)

Anterior epigynal margin represented by undivided groove; lateral epigynal margins shorter; epigynum lacking transverse ridges (Figs. 142, 146, 150) 22

22(21). Anterior epigynal margin narrow; lateral epigynal margins well separated (Fig. 146) ..... ***laccus* (Barrows)** (p. 93)

Anterior epigynal margin wider; lateral epigynal margins closer together (Figs. 142, 150) 23

23(22). Lateral and posterior epigynal margins defining teardrop-shaped plate (Fig. 150); copulatory tubes short (Fig. 151). Carapace width more than 1.05 mm ..... ***puritanus* Chamberlin** (p. 96)

Lateral and posterior epigynal margins not defining plate (Fig. 142); copulatory tubes longer, arched (Fig. 143). Carapace width less than 1.00 mm ..... ***exiguoides* Platnick & Shadab** (p. 92)

Clé des espèces de *Zelotes*

1. Mâle 2

Femelle 13

2(1). Embolus dont la partie terminale s'étend distalement, et repose dans la courbe du cymbium (vue rétrolatérale, fig. 105, 121, 133) 3

Embolus dont la partie terminale s'étend généralement à la base (ou si distalement, elle est plus courte et plus épaisse, comme dans la fig. 149), et repose sur l'apophyse médiane ou à proximité (vue rétrolatérale, fig. 137, 141, 145) 10

3(2). Base embolaire dont la marge distale est essentiellement droite (vue ventrale, fig. 104, 108, 112) 4

Base embolaire dont la marge distale est courbée, anguleuse ou vaguement arrondie (fig. 116, 120, 124) 6

4(3). Apophyse terminale petite, pointue (fig. 104) ..... ***fratris*** **Chamberlin** (p. 77)

Apophyse terminale plus grosse, à peu près triangulaire ou rectangulaire (fig. 108, 112) 5

5(4). Projection embolaire s'étendant au-dessus de l'embolus (fig. 108). Largeur de la carapace généralement supérieure à 1,65 mm ..... ***tuobus*** **Chamberlin** (p. 79)

Processus embolaire ne s'étendant pas au-dessus de l'embolus (fig. 112). Largeur de la carapace généralement inférieure à 1,65 mm ..... ***sula*** **Lowrie & Gertsch** (p. 81)

6(3). Projection embolaire s'étendant au-dessus de l'embolus (fig. 116) ..... ***rainier*** **Platnick & Shadab** (p. 82)

Projection embolaire ne s'étendant pas au-dessus de l'embolus 7

7(6). Base embolaire à long prolongement distal (fig. 120) ..... ***hentzi*** **Barrows** (p. 84)

Base embolaire à prolongement distal plus court (fig. 124, 128, 132) 8

8(7). Projection embolaire finement pointue (fig. 124) ..... ***lasalanus*** **Chamberlin** (p. 86)

Projection embolaire vaguement pointue ou plutôt ronde (fig. 128, 132) 9

9(8). Projection embolaire vaguement pointue (fig. 128). Araignée de l'est du Canada (carte 19) ..... ***pullus*** **(Bryant)** (p. 87)

Projection embolaire plutôt ronde (fig. 132). Araignée se retrouvant dans l'État de Washington et peut-être dans le sud de la Colombie-Britannique (carte 20) ..... ***josephine*** **Platnick & Shadab** (p. 89)

10(2). Apophyse terminale à marge distale convexe (fig. 136) .... ***duplex*** **Chamberlin** (p. 91)

Apophyse terminale à marge distale plus droite (fig. 140, 144, 148) 11

11(10). Palpe pourvu d'une apophyse tibiale rétrolatérale nettement plus longue que le tibia (fig. 141) .... ***exiguoides*** **Platnick & Shadab** (p. 92)

Palpe pourvu d'une apophyse tibiale rétrolatérale à peu près aussi longue que le tibia (fig. 145, 149) 12

12(11). Apophyse médiane pourvue de deux pointes (fig. 145). Largeur de la carapace inférieure à 0,80 mm .... ***laccus*** **(Barrows)** (p. 93)

Apophyse médiane pourvue d'une seule pointe (fig. 149). Largeur de la carapace supérieure à 1,20 mm .... ***puritanus*** **Chamberlin** (p. 96)

13(1). Marges épigynales latérales et postérieures réunies entourant la plaque; plaque munie d'une pointe orientée postérieurement à la ligne médiane (fig. 106, 122, 134) 14

Marges épigynales latérales et postérieures réunies entourant la plaque en forme de flacon (fig. 138, 150); si la plaque est d'une autre forme, elle est dépourvue de pointe orientée postérieurement (fig. 142, 146) 21

14(13). Plaque entourée par les marges épigynales latérales et postérieures et s'étendant généralement antérieurement (fig. 134); canaux épigynaux médians gros, bulbeux (fig. 135) .... ***josephine*** **Platnick & Shadab** (p. 89)

Plaque entourée par les marges épigynales latérales et postérieures et s'étendant postérieurement (fig. 106, 122, 130); canaux épigynaux médians plus petits, non bulbeux (fig. 107, 123, 131) 15

15(14). Canaux épigynaux médians en spire ouverte (fig. 123, 127, 131) 16

Canaux épigynaux médians droits ou un peu courbés (fig. 107, 115, 119) 18

16(15). Canaux épigynaux paramédians épais, s'élevant dans la courbure du tube copulateur (fig. 131) .... ***pullus*** **(Bryant)** (p. 87)

Canaux épigynaux paramédians plus effilés, s'élevant le long de la partie transverse du tube copulateur (fig. 123, 127) 17

17(16). Marges épigynales latérales larges (fig. 122) .....
..... ***hentzi*** **Barrows** (p. 84)

Marges épigynales latérales plus effilées (fig. 126) .....
..... ***lasalanus*** **Chamberlin** (p. 86)

18(15). Canaux épigynaux médians minuscules (fig. 119), à extrémités anguleuses antérieurement (fig. 118) .....
..... ***rainier*** **Platnick & Shadab** (p. 82)

Canaux épigynaux médians plus gros, à extrémités anguleuses latéralement ou non anguleuses (fig. 106, 107, 111, 115) .. 19

19(18). Canaux épigynaux médians épais sur toute leur longueur (fig. 107) ..... ***fratris*** **Chamberlin** (p. 77)

Canaux épigynaux médians effilés à la base, plus épais distalement (fig. 111, 115) 20

20(19). Canaux épigynaux médians anguleux aux extrémités (fig. 115). Largeur de la carapace généralement inférieure à 1,75 mm ...
..... ***sula*** **Lowrie & Gertsch** (p. 80)

Canaux épigynaux médians plutôt ronds aux extrémités (fig. 111). Largeur de la carapace généralement supérieure à 1,75 mm ..... ***tuobus*** **Chamberlin** (p. 79)

21(13). Marge épigynale antérieure sous forme de deux rainures légèrement séparées; marges épigynales latérales plutôt longues; épigyne pourvue d'une série d'arêtes transverses (fig. 138) ...
..... ***duplex*** **Chamberlin** (p. 91)

Marge épigynale antérieure sous forme d'une rainure unique; marges épigynales latérales plus courtes; épigyne sans arêtes transverses (fig. 142, 146, 150) 22

22(21). Marge épigynale antérieure étroite; marges épigynales latérales bien séparées (fig. 146) ..... ***laccus*** **(Barrows)** (p. 93)

Marge épigynale antérieure plus large; marges épigynales latérales plus rapprochées (fig. 142, 150) 23

23(22). Marges épigynales postérieures et latérales dessinant une plaque en forme de larme (fig. 150); tubes copulateurs courts (fig. 151). Largeur de la carapace plus que 1,05 mm .....
..... ***puritanus*** **Chamberlin** (p. 96)

Marges épigynales postérieures et latérales ne dessinant pas de plaque (fig. 142); tubes copulateurs plus longs, arqués (fig. 143). Largeur de la carapace moins que 1,00 mm .....
..... ***exiguoides*** **Platnick & Shadab** (p. 92)

Zelotes fratris Chamberlin

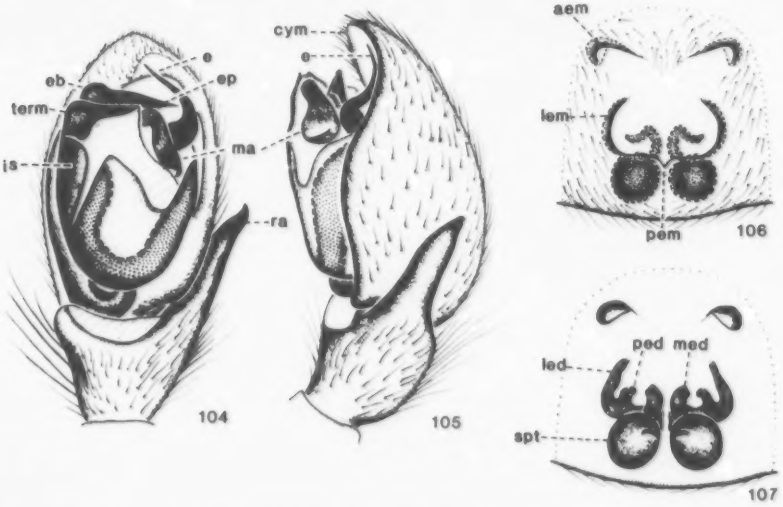
Figs. 104–107; Map 16

Zelotes fratris Chamberlin, 1920:193, fig. 1; Platnick and Shadab 1983:106, figs. 6–11.

Zelotes subterraneus: Kaston 1948:356, figs. 1248–1251 (pl. 65).

Zelotes inheritus: Kaston 1948:356, fig. 1247 (pl. 65) (female only).

Male. Total length 6.04 ± 0.49 mm; carapace 2.64 ± 0.15 mm long, 2.06 ± 0.13 mm wide; femur II 1.54 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.08, PLE 0.08, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.09; median ocular quadrangle 0.26 long, 0.18 wide at front, 0.21 wide at back. Embolus with terminal part extending distally within curve of cymbium (retrolateral view, Fig. 105); embolar base with distal margin straight (ventral view, Fig. 104); terminal apophysis small, pointed (Fig. 104).

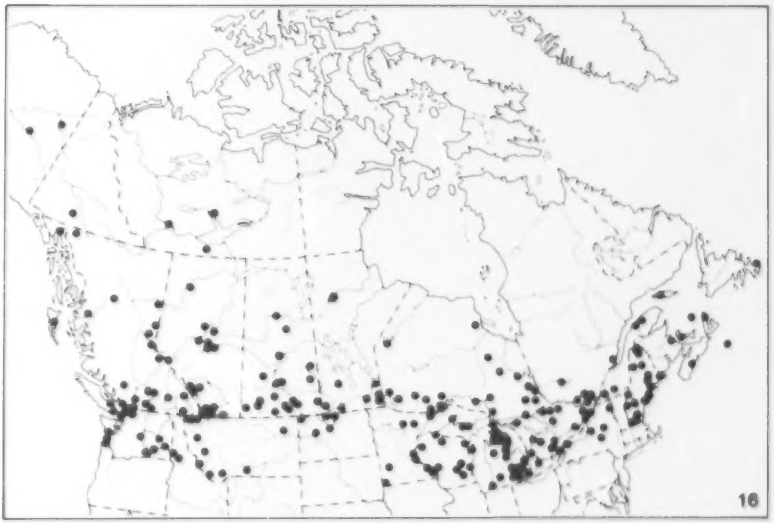


Figs. 104–107. Genitalia of *Zelotes fratris*. 104, 105, palpus of male; 104, ventral view; 105, retrolateral view; 106, 107, epigynum and spermathecae; 106, ventral view; 107, dorsal view. *aem*, anterior epigynal margin; *e*, embolus; *eb*, embolar base; *ep*, embolar projection; *cym*, cymbium; *is*, intercalary sclerite; *led*, lateral epigynal duct; *lem*, lateral epigynal margin; *ma*, median apophysis; *med*, median epigynal duct; ped, posterior epigynal duct; *pem*, posterior epigynal margin; *ra*, retrolateral tibial apophysis; *spt*, spermatheca; *term*, terminal apophysis.

Female. Total length 6.96 ± 0.69 mm; carapace 2.76 ± 0.13 mm long, 2.10 ± 0.09 mm wide; femur II 1.55 ± 0.04 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.09, PME 0.09, PLE 0.08, AME–AME 0.09, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.25 long, 0.29 wide in front, 0.23 wide at back. Lateral and posterior epigynal margins together defining plate having its posterior end directed posteriorly at midline (Fig. 106); median epigynal ducts small, somewhat curved, thick throughout their length (Fig. 107).

Comments. Specimens of *Z. fratris* are distinguished from those of the other Canadian species in the genus by the small pointed terminal apophysis and, in females, by the small stout median epigynal ducts.

Range. Alaska to Newfoundland, south to California, Arizona, New Mexico, and North Carolina; USSR (Ovtsharenko and Marusik 1988).



Map 16. Collection localities of *Zelotes fratris*.

Biology. Mature males have been taken from late April to late September and rarely in November and January, mature females in every month except January. Specimens have been collected by pitfall and vacuum traps in aspen, maple, oak, red alder, willow, cedar, fir, pine, and spruce forests; on sand dunes, orchards, meadows, sagebrush, marshes

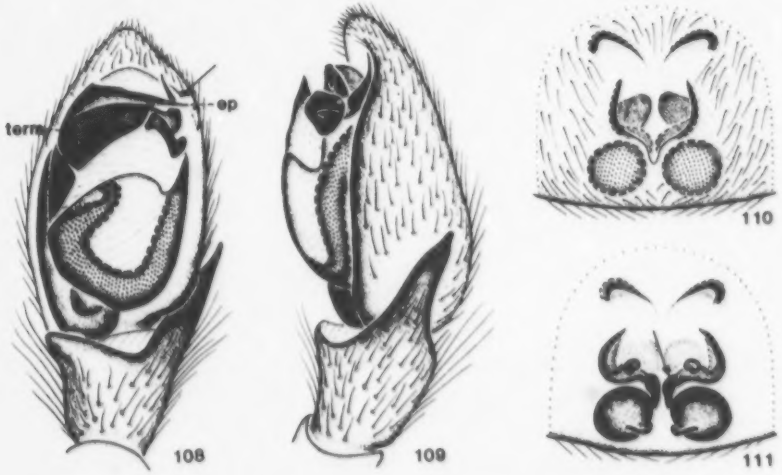
(salt and fresh); and under surface debris on the ground. Elevations of up to 3900 m have been recorded for *Z. fratris* in the U.S. Rocky Mountains. Kaston (1948) reported egg sacs, which are attached to the undersides of stones, in July and August. The sacs were white when first made but changed to a pinkish hue with time; they were guarded by the mother.

Zelotes tuobus Chamberlin

Figs. 108–111; Map 19

Zelotes tuobus Chamberlin, 1919*b*:247, fig. 7 (pl. 16); Platnick and Shadab 1983:124, figs. 52–57.
Zelotes pullatus Fox, 1938:237, fig. 2 (pl. 2).

Male. Total length 6.50 ± 0.81 mm; carapace 2.91 ± 0.31 mm long, 2.18 ± 0.25 mm wide; femur II 1.90 ± 0.24 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE, 0.10, PME 0.09, PLE 0.08, AME–AME 0.07, AME–ALE 0.01, PME–PME 0.09, PME–PLE 0.09, ALE–PLE 0.08; median ocular quadrangle 0.30 long, 0.19 wide at front, 0.27 wide in back. Embolus with terminal part extending distally within curve of cymbium (retrolateral view, Fig. 109); embolar base essentially straight; terminal apophysis large, approximately rectangular (Fig. 108).



Figs. 108–111. Genitalia of *Zelotes tuobus*. 108, 109, palpus of male; 108, ventral view; 109, retrolateral view; 110, 111, epigynum and spermathecae; 110, ventral view; 111, dorsal view. *ep*, embolar projection; *term*, terminal apophysis.

Female. Total length 7.86 ± 0.81 mm; carapace 3.13 ± 0.27 mm long, 2.26 ± 0.19 mm wide; femur II 1.92 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.07, PME 0.10, PLE 0.10, AME–AME 0.11, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.10, ALE–PLE 0.11; median ocular quadrangle 0.31 long, 0.23 wide at front, 0.26 wide at back. Epigynal plate with posteriorly directed point (Fig. 110); median epigynal ducts straight, moderately large, slender at base, rounded at tips (Fig. 111).

Comments. Specimens of *Z. tuobus* are distinguished from those of the other Canadian species of the genus by the large, approximately rectangular terminal apophysis and by the straight, basally rounded, slender median epigynal ducts.

Range. Southern interior British Columbia, south to California, Arizona, and New Mexico, east to Kentucky and Tennessee.

Biology. Mature males have been taken from late April to September, and mature females from June to October. Collections have been made by pitfall traps in sagebrush-covered hillsides and under logs and pieces of broken rock. Most individuals were at low elevations, but a few were collected at elevations of up to 3300 m at Graveyard Lake, Fresno County, Calif.

Zelotes sula Lowrie & Gertsch

Figs. 112–115; Map 17

Zelotes sula Lowrie and Gertsch, 1955:11, figs. 1–3; Platnick and Shadab 1983:109, figs. 12–17.

Male. Total length 4.47 ± 0.40 mm; carapace 1.92 ± 0.11 mm long, 1.51 ± 0.10 mm wide; femur II 1.11 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.05, PLE 0.06, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.19 long, 0.13 wide at front, 0.15 wide at back. Embolus with terminal part extending distally within curve of cymbium (retrolateral view, Fig. 113); embolar base with distal margin essentially straight (ventral view, Fig. 112); terminal apophysis large, approximately triangular (Fig. 112).

Female. Total length 4.61 ± 0.56 mm; carapace 1.94 ± 0.16 mm long, 1.50 ± 0.13 mm wide; femur II 1.09 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.08, PME 0.06, PLE 0.06, AME–AME 0.05, AME–ALE 0.02,

PME–PME 0.04, PME–PLE 0.06, ALE–PLE 0.05; median ocular quadrangle 0.16 long, 0.11 wide at front, 0.16 wide at back. Lateral and posterior epigynal margins enclosing plate; plate having posteriorly directed point at midline (Fig. 114); median epigynal ducts slender at base, angular at tips (Fig. 115).

Comments. Specimens of *Z. sula* are distinguished from those of the other Canadian species of the genus by the large approximately triangular terminal apophysis and by the basally slender median epigynal ducts.

Range. Alaska to Labrador, south to Utah, Colorado, and northern New York and New Hampshire; USSR (Ovtsharenko and Marusik 1988).

Biology. Mature males have been taken from June to September, mature females from June to October. Individuals have been collected on talus slopes, under stones and by pitfall traps in alpine meadows, and in pastures and roadside ditches in the Central Plains. In Colorado, specimens have been found at elevations of up to 3900 m.

Figs. 112–115. Genitalia of *Zelotes sula*. 112, 113, palpus of male; 112, ventral view; 113, retrolateral view; 114, 115, epigynum and spermathecae; 114, ventral view; 115, dorsal view.

Map 17. Collection localities of *Zelotes sula*.

Zelotes rainier Platnick & Shadab

Figs. 116–119; Map 20

Zelotes rainier Platnick and Shadab, 1983:133, figs. 82–87.

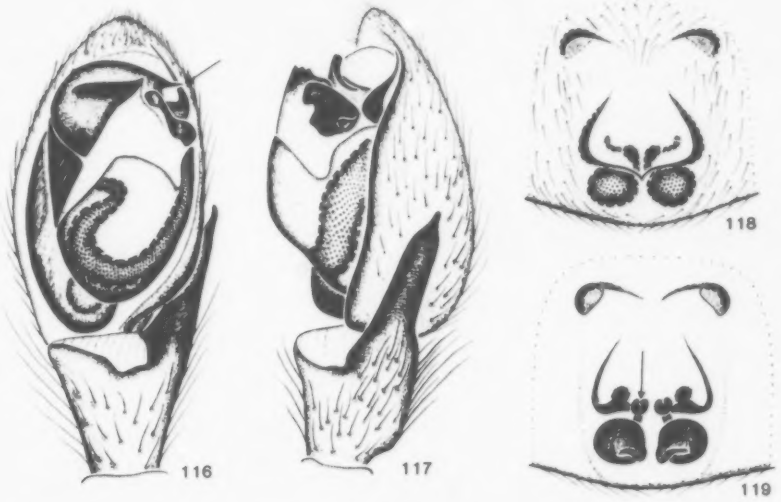
Male. Total length 4.81 ± 0.56 mm; carapace 2.04 ± 0.18 mm long, 1.61 ± 0.14 mm wide; femur II 1.29 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.20 long, 0.15 wide at front, 0.19 wide at back. Embolus with terminal part extending distally within curve of cymbium (retrolateral view, Fig. 117); embolar base with distal margin broadly curved; embolar process extending over embolus (Fig. 116).

Female. Total length 5.62 ± 0.95 mm; carapace 2.27 ± 0.22 mm long, 1.73 ± 0.16 mm wide; femur II 1.36 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.08, PME 0.06, PLE 0.06, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.19 long, 0.15 wide at front, 0.18 wide at back. Median epigynal ducts curved, minute (Fig. 119), externally with ends angled anteriorly (Fig. 118).

Comments. Specimens of *Z. rainier* are distinguished from those of the other Canadian species in the genus by the broadly curved distal margin of the embolus base and by the anteriorly angled median epigynal ducts.

Range. Washington State and possibly southern British Columbia.

Biology. Mature males of *Z. rainier* have been taken in August and September, mature females in July and August. Collections have been made by pitfall traps in talus, pine forests, and alpine meadows. One specimen was found in dry grass tussocks. The highest elevation at which any were found is 2230 m.



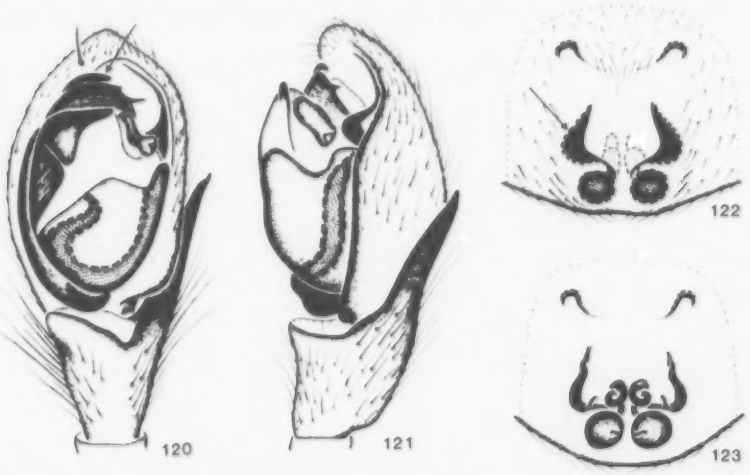
Figs. 116–119. Genitalia of *Zelotes rainier*. 116, 117, palpus of male; 116, ventral view; 117, retrolateral view; 118, 119, epigynum and spermathecae; 118, ventral view; 119, dorsal view.

Zelotes hentzi Barrows

Figs. 120–123; Map 18

Zelotes hentzi Barrows, 1945:75, figs. 5, 6 (pl. 2); Kaston 1948:357, figs. 1242–1244 (pl. 65); Platnick and Shadab 1983:112, figs. 19–24.

Male. Total length 5.18 ± 0.53 mm; carapace 2.32 ± 0.21 mm long, 1.78 ± 0.16 mm wide; femur II 1.37 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.06, PLE 0.06, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.04, PME–PLE 0.06, ALE–PLE 0.06; median ocular quadrangle 0.20 long, 0.14 wide at front, 0.15 wide at back. Embolar tip extending distally (Fig. 121); embolar base curved, with ledge-like extension along distal edge; embolus slender throughout its length (Fig. 120).



Figs. 120–123. Genitalia of *Zelotes hentzi*. 120, 121, palpus of male; 120, ventral view; 121, retrolateral view; 122, 123, epigynum and spermathecae; 122, ventral view; 123, dorsal view.

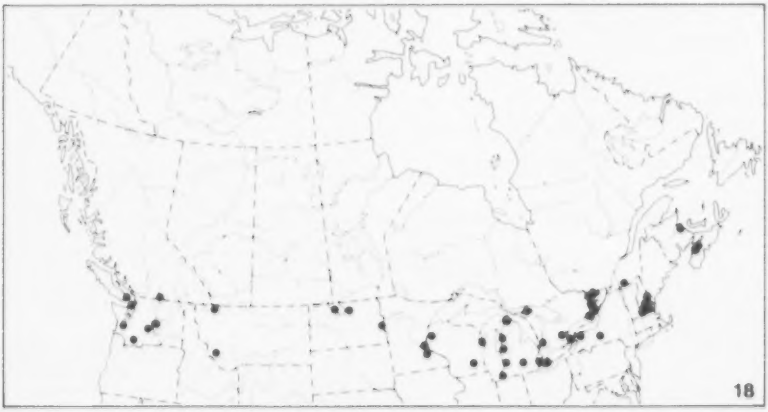
Female. Total length 5.94 ± 0.77 mm; carapace 2.55 ± 0.23 mm long, 1.91 ± 0.11 mm wide; femur II 1.44 ± 0.15 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.06, PLE 0.08, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.07, PME–PLE 0.07, ALE–PLE 0.09; median ocular quadrangle 0.24 long, 0.15 wide at front, 0.19 wide at back. Lateral

epigynal margins conspicuously widened (Fig. 122). Median epigynal ducts in open coil; paramedian ducts rather slender, arising along transverse part of copulatory tube (Fig. 123).

Comments. Specimens of *Z. hentzi* are distinguished from those of the other Canadian species in the genus by the curved embolar base, which has a ledge-like extension along its distal margin, and by the widened lateral epigynal margins and coiled median epigynal ducts.

Range. Southern British Columbia to Nova Scotia, south to northern California, Texas, and Florida.

Biology. Mature males have been taken year round, and mature females in every month except January. Individuals have been collected in pitfall traps in aspen, cottonwood, lodgepole pine, oak, and spruce forests; in sand dunes, a beech-magnolia hammock, chaparral, citrus groves, cotton fields, meadows, pecan groves, prairies, and sagebrush; and by hand searches under boards, logs, and stones. Specimens were collected at a maximum elevation of 2250 m.



Map 18. Collection localities of *Zelotes hentzi*.

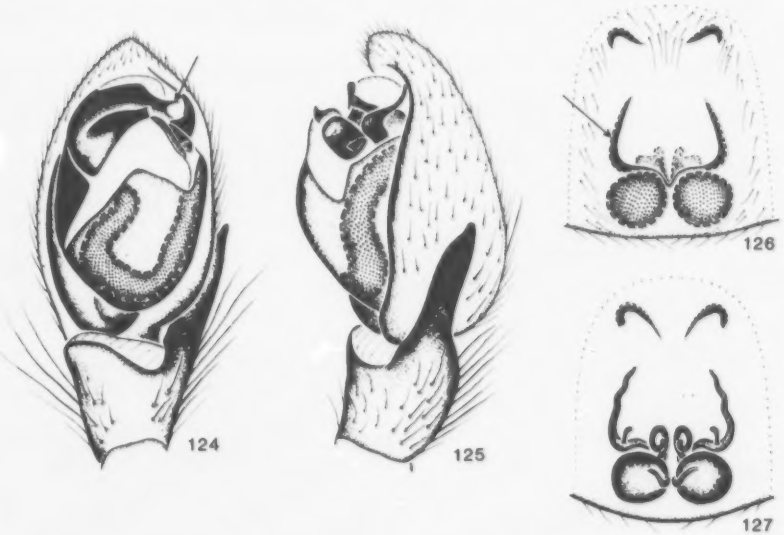
Zelotes lasalanus Chamberlin

Figs. 124–127; Map 19

Zelotes lasalanus Chamberlin, 1928:93; Platnick and Shadab 1983:114, figs. 25–30.

Zelotes chicano Gertsch and Riechert, 1976:15, figs. 15–17.

Male. Total length 4.54 ± 0.33 mm; carapace 2.09 ± 0.21 mm long, 1.59 ± 0.16 mm wide; femur II 1.25 ± 0.14 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.07, PLE 0.06, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.04, PME–PLE 0.07, ALE–PLE 0.06; median ocular quadrangle 0.21 long, 0.14 wide at front, 0.18 wide at back. Embolar tip extending distally (Fig. 125); embolar base with distal margin somewhat curved and angular; embolar projection short, finely pointed (Fig. 124).



Figs. 124–127. Genitalia of *Zelotes lasalanus*. 124, 125, palpus of male; 124, ventral view; 125, retrolateral view; 126, 127, epigynum and spermathecae; 126, ventral view; 127, dorsal view.

Female. Total length 5.49 ± 0.39 mm; carapace 2.14 ± 0.14 mm long, 1.60 ± 0.10 mm wide; femur II 1.22 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.08, PME 0.08, PLE 0.09, AME–AME 0.05, AME–ALE 0.02,

PME–PME 0.04, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.25 long, 0.15 wide at front, 0.20 wide at back. Lateral epigynal margins slender (Fig. 126). Median epigynal ducts small, not bulbous, in open coil; paramedian epigynal ducts slender, arising along transverse part of copulatory tube (Fig. 127).

Comments. Specimens of *Z. lasalanus* are distinguished from those of the other Canadian species of *Zelotes* by the somewhat curved, angular distal margin of the embolar base and the short, finely pointed embolar projection of males; and by the slender lateral epigynal margins, small coiled median epigynal ducts, and slender paramedian epigynal ducts of females.

Range. Alberta to Manitoba, south to California, Texas, and Mexico.

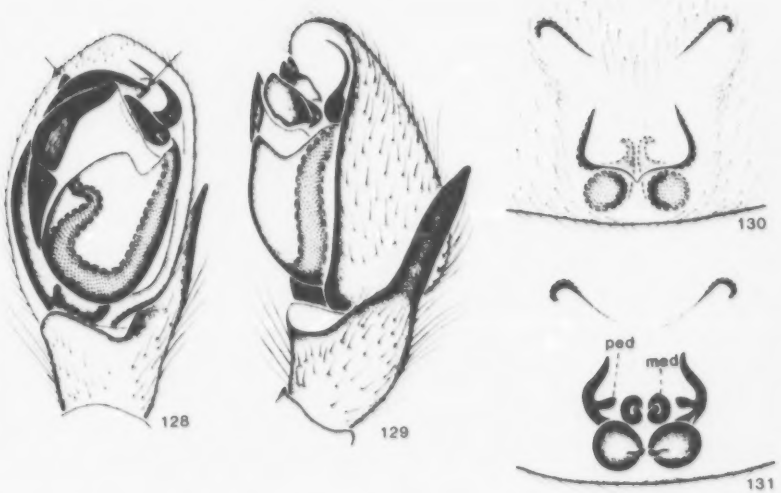
Biology. Mature males of *Z. lasalanus* have been taken from mid March to early October, mature females from mid February to late October. Individuals were collected by pitfall traps in stands of hawthorn, juniper, mesquite, nolina, oak, and pinyon pine, in fields and prairies, and on shores. Some were collected individually under stones, dung, or other debris. Elevations of up to 3250 m are recorded.

Zelotes pullus (Bryant)

Figs. 128–131; Map 19

Drassyllus pullus Bryant, 1936:95, figs. 4, 5.
Zelotes pullus: Kaston 1945:2; Platnick and Shadab 1983:117, figs. 31–36.
Zelotes inheritus Kaston, 1945:1, figs. 6, 7 (male, not female); 1948:356, figs. 1245, 1246 (pl. 65).

Male. Total length 5.60 ± 0.79 mm; carapace 2.68 ± 0.37 mm long, 2.06 ± 0.33 mm wide; femur II 1.63 ± 0.24 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.08, PLE 0.08, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.23 long, 0.18 wide at front, 0.22 wide at back. Embolar tip extending distally (Fig. 129); embolar base broadly curved along distal margin, with triangular extension at prolateral side; embolar projection bluntly pointed (Fig. 128).



Figs. 128–131. Genitalia of *Zelotes pullus*. 128, 129, palpus of male; 128, ventral view; 129, retrolateral view; 130, 131, epigynum and spermathecae; 130, ventral view; 131, dorsal view. *med*, median epigynal duct; *ped*, posterior epigynal duct.

Female. Total length 6.46 ± 0.87 mm; carapace 2.71 ± 0.30 mm long, 2.07 ± 0.23 mm wide; femur II 1.63 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.09, PLE 0.08, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.26 mm long, 0.18 wide at front, 0.23 wide at back. Anterior epigynal margins widely separated, much farther apart than lateral epigynal margins (Fig. 130); median epigynal ducts small, in open coil; paramedian epigynal ducts thick, arising at curve of copulatory tube (Fig. 131).

Comments. Specimens of *Z. pullus* are distinguished from those of other Canadian species of *Zelotes* by the broadly curved distal margin and small triangular extension on the embolar base, by the blunt embolar projection, and by the widely separated anterior epigynal margins, small coiled median epigynal ducts, and thick laterally situated paramedian epigynal ducts of females.

Range. Northern New York and Massachusetts, south to Mississippi and Florida.

Biology. Mature males and females of *Z. pullus* have been taken in every month of the year, but in the northern parts of its range, only from

fromApril to September. Individuals were collected under stones and debris on the ground in pine forests, swamps, and broom sedge stands.

Map 19. Collection localities of *Zelotes tuobus* (▲), *Z. lasalanus* (●), and *Z. pullus* (◆).

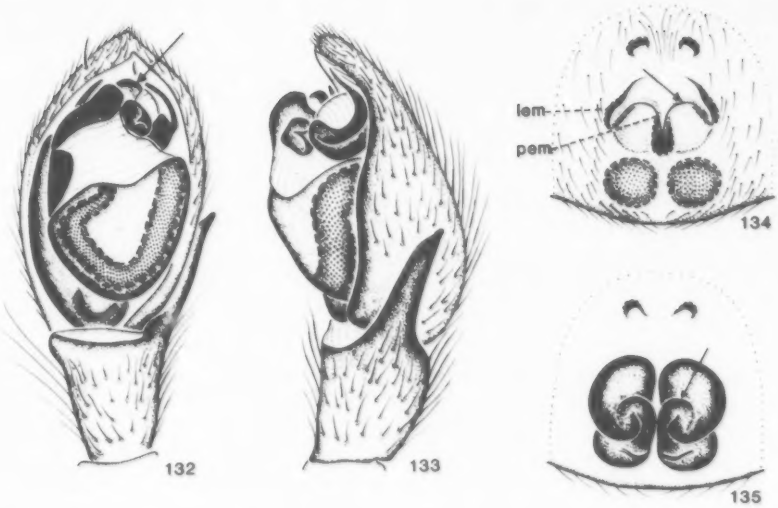
Zelotes josephine Platnick & Shadab

Figs. 132–135; Map 20

Zelotes josephine Platnick and Shadab, 1983:151, figs. 138, 144-147.

Male. Total length 3.68 mm; carapace 2.06 mm long, 1.53 mm wide; femur II 1.22 mm long (one specimen measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.06, PME 0.07, PLE 0.07, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.04, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.19 long, 0.12 wide at front, 0.18 wide at back. Embolar tip extending distally (Fig. 133); embolar base bluntly rounded at distal margin, with slender pointed prolateral projection (Fig. 132).

Female. Total length 7.60 ± 0.89 mm; carapace 3.00 ± 0.11 mm long, 2.31 ± 0.16 mm wide; femur II 1.77 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.11, PME 0.10, PLE 0.11, AME–AME 0.08, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.08, ALE–PLE 0.08; median ocular quadrangle 0.31 long, 0.22 wide at front, 0.25 wide at back. Anterior epigynal margin narrow; posterior epigynal margin extended far anteriorly (Fig. 134). Median epigynal ducts large, bulbous (Fig. 135).



Figs. 132–135. Genitalia of *Zelotes josephine*. 132, 133, palpus of male; 132, ventral view; 133, retrolateral view; 134, 135, epigynum and spermathecae; 134, ventral view; 135, dorsal view. *lem*, lateral epigynal margin; *pem*, posterior epigynal margin.

Comments. Specimens of *Z. josephine* are distinguished from those of the other Canadian species of *Zelotes* by the combination of small size, rounded embolar base having a slender pointed prolateral projection, narrow anterior epigynal margin, modified posterior epigynal margin, and large bulbous median epigynal ducts.

Range. Northern California to Washington (and probably southern British Columbia).

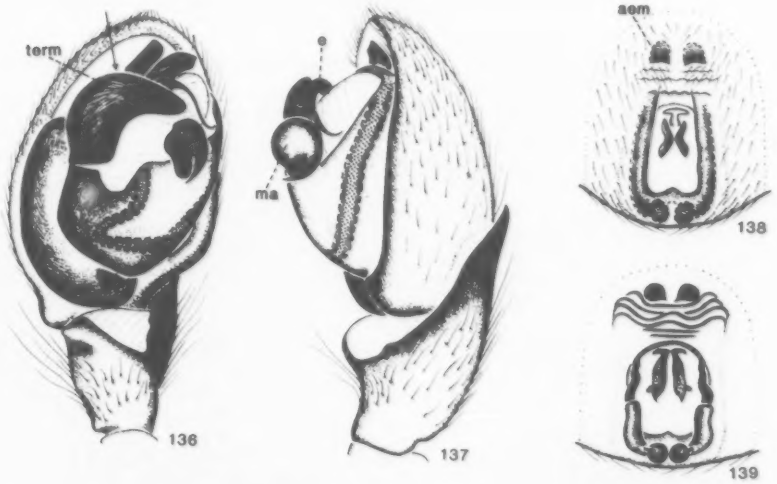
Biology. The only known mature male was collected in early July. Mature females were collected from April to September. The only recorded habitat is under rocks at an elevation of 800 m.

Zelotes duplex Chamberlin

Figs. 136–139; Map 20

Zelotes duplex Chamberlin, 1922:164; Kaston 1948:355, figs. 1233–1235 (pl. 164); Platnick and Shadab 1983:168, figs. 203–208, 269.
Zelotes sylvanus Chamberlin and Ivie 1944:176, figs. 202, 203.

Male. Total length 5.13 ± 0.54 mm; carapace 2.22 ± 0.17 mm long, 1.77 ± 0.10 mm wide; femur II 1.46 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.07, PLE 0.07, AME–AME 0.04, AME–ALE 0.01, PME–PME 0.04, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.22 long, 0.12 wide at front, 0.18 wide at back. Embolus with tip directed basally and lying near median apophysis (Figs. 136, 137); terminal apophysis with distal margin long and convex (Fig. 136).



Figs. 136–139. Genitalia of *Zelotes duplex*. 136, 137, palpus of male; 136, ventral view; 137, retrolateral view; 138, 139, epigynum and spermathecae; 138, ventral view; 139, dorsal view. *aem*, anterior epigynal margin; *e*, embolus; *ma*, median apophysis; *term*, terminal apophysis.

Female. Total length 5.03 ± 1.00 mm; carapace 2.03 ± 0.19 mm long, 1.60 ± 0.20 mm wide; femur II 1.25 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.05, PLE 0.07, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.07, ALE–PLE 0.05; median ocular quadrangle 0.21 long, 0.16 wide at front, 0.15 wide at back. Anterior

epigynal margin extemely short; lateral epigynal margins unusually long; epigynum with series of transverse ridges posterior to anterior epigynal margin (Fig. 138). Copulatory tubes thick, angled (Fig. 139).

Comments. Males of *Z. duplex* are distinguished from those of the other Canadian species of *Zelotes* by the combination of a long convex distal margin on the terminal apophysis and a basally directed embolus tip. Females are distinguished by the extremely narrow anterior epigynal margin (represented by two narrowly separated grooves), long lateral epigynal margins, series of transverse ridges, and thick angled copulatory tubes.

Range. Michigan and southern Ontario to Massachusetts, south to eastern Texas and northern Florida.

Biology. Mature males of *Z. duplex* have been taken from April to October, mature females from February to October. Individuals have been collected in pitfall traps in hickory, oak, and pine forests; in a beech–magnolia hammock; and in pastures and prairies. A few appeared in buildings.

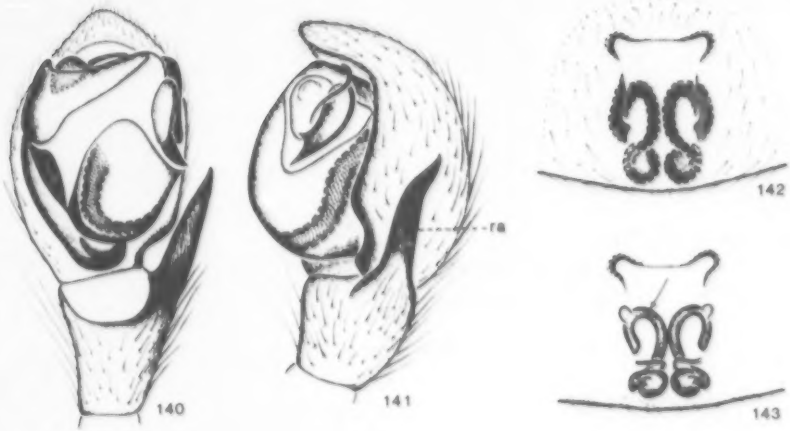
Zelotes exiguoides Platnick & Shadab

Figs. 140–143; Map 21

Zelotes exiguoides Platnick and Shadab, 1983:175, figs. 225–230.

Male. Total length 2.30 ± 0.28 mm; carapace 0.98 ± 0.10 mm long, 0.77 ± 0.11 mm wide; femur II 0.61 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.05, PLE 0.05, AME–AME 0.04, AME–ALE 0.01, PME–PME 0.03, PME–PLE 0.03, ALE–PLE 0.04; median ocular quadrangle 0.12 long, 0.10 wide at front, 0.12 wide at back. Embolus tip extending generally basally, lying on median apophysis (Fig. 141). Terminal apophysis with distal margin essentially straight (Fig. 140).

Female. Total length 2.55 ± 0.28 mm; carapace 0.95 ± 0.08 mm long, 0.78 ± 0.05 mm wide; femur II 0.58 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.05, PLE 0.05, AME–AME 0.02, AME–ALE 0.01, PME–PME 0.03, PME–PLE 0.03, ALE–PLE 0.05; median ocular quadrangle 0.13 long, 0.07 wide at front, 0.12 wide at back. Lateral epigynal margins separated; posterior epigynal margin not developed (Fig. 142). Copulatory tubes long, arched (Fig. 143).



Figs. 140–143. Genitalia of *Zelotes exiguoides*. 140, 141, palpus of male; 140, ventral view; 141, retrolateral view; 142, 143, epigynum and spermathecae; 142, ventral view; 143, dorsal view. *ra*, retrolateral tibial apophysis.

Comments. Specimens of *Z. exiguoides* are distinguished from those of other Canadian species of *Zelotes* by the combination of small size, embolus tip extending generally basally, terminal apophysis with essentially straight distal margin, lateral epigynal margins separated, and copulatory tubes long and arched.

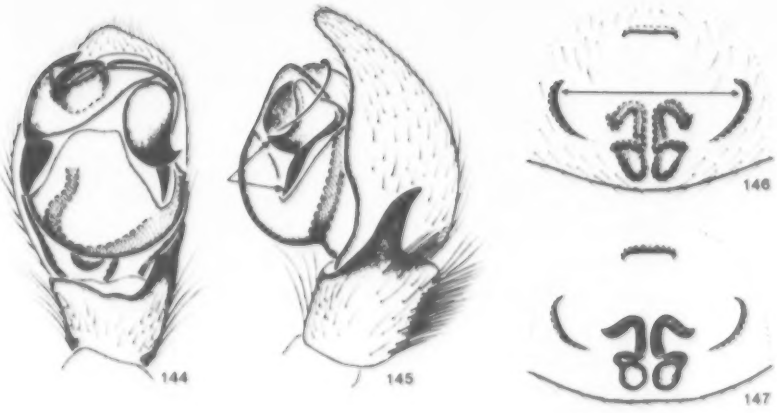
Range. Northern British Columbia to Ontario and New Hampshire, south to Colorado and Pennsylvania.

Biology. Mature males of *Z. exiguoides* have been taken from May to July, mature females from June to August. Individuals have been collected in pitfall traps in spruce and cottonwood stands and on sand dunes.

Zelotes laccus (Barrows)

Figs. 144–147; Map 20

Prosthesima lacca Barrows, 1919:355, fig. 3.
Zelotes laccus: Kaston 1938*b*:193; 1948:355, figs. 1236–1238 (pl. 64); Platnick and Shadab 1983:173, figs. 219–224.



Figs. 144–147. Genitalia of *Zelotes laccus*. 144, 145, palpus of male; 144, ventral view; 145, retrolateral view; 146, 147, epigynum and spermathecae; 146, ventral view; 147, dorsal view.

Male. Total length 2.02 ± 0.13 mm; carapace 0.84 ± 0.03 mm long, 0.62 ± 0.04 mm wide; femur II 0.50 ± 0.03 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.05, PME 0.04, PLE 0.04, AME–AME 0.02, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.03, ALE–PLE 0.03; median ocular quadrangle 0.10 long, 0.07 wide at front, 0.09 wide at back. Palpal tibia with short retrolateral apophysis; retrolateral apophysis approximately as long as tibia; median apophysis with two points (Figs. 144, 145); embolus extending generally basally (Fig. 145).

Female. Total length 2.43 ± 0.32 mm; carapace 0.89 ± 0.04 mm long, 0.67 ± 0.04 mm wide; femur II 0.52 ± 0.02 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.02, AME–ALE 0.01, PME–PME 0.03, PME–PLE 0.03, ALE–PLE 0.04; median ocular quadrangle 0.12 long, 0.09 wide at front, 0.11 wide at back. Anterior epigynal margin represented by single undivided groove; lateral epigynal margins well separated (Fig. 146). Copulatory tubes abruptly angled (Fig. 147).

Comments. Specimens of *Z. laccus* are distinguished from those of other Canadian species of *Zelotes* by the combination of small size, short retrolateral apophysis on the male palpal tibia, median apophysis with two points, anterior epigynal margin undivided, lateral epigynal margins well separated, and copulatory tubes abruptly angled.

Range. Iowa to southern Ontario and Pennsylvania, south to Louisiana and North Carolina.

Biology. Mature males and females of *Z. laccus* have been collected from May to August. Individuals were taken by pitfall traps in grassy meadows, cotton fields, pastures, and a brushy prairie. Kaston (1948) reported males and females taken together under stones in a New England pasture.

Map 20. Collection localities of *Zelotes rainier* (●), *Z. josephine* (▲), *Z. duplex* (★), and *Z. laccus* (◆).

Map 21. Collection localities of *Zelotes exiguoides*.

Zelotes puritanus Chamberlin

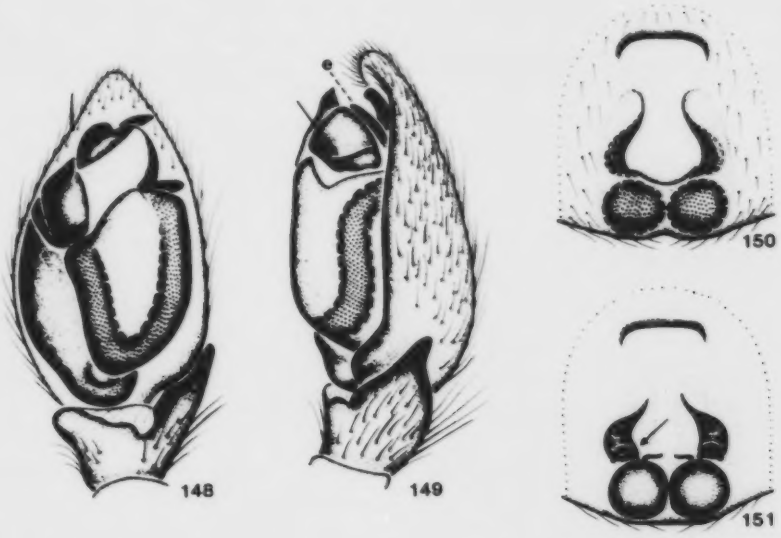
Figs. 148–151; Map 22

Zelotes puritanus Chamberlin, 1922:164; Kaston 1948:356, figs. 1239–1241 (pl. 65); Platnick and Shadab 1983:180, figs. 247–252; Grimm 1985:220, figs. 248*a*, 248*b*, 270, 271.

Zelotes shoshoneus Chamberlin, 1936*b*:11, figs. 42, 43.

Zelotes kodaensis Miller and Buchar, 1977:157, figs. 1–9 (pl. 1).

Male. Total length 4.66 ± 0.48 mm; carapace 2.15 ± 0.20 mm long, 1.66 ± 0.15 mm wide; femur II 1.27 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.08, PLE 0.07, AME–AME 0.08, AME–ALE 0.05, PME–PME 0.09, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.23 long, 0.20 wide at front, 0.25 wide at back. Palpal tibia with short retrolateral apophysis; retrolateral apophysis approximately as long as tibia; embolus rather short and thick, lying on median apophysis (Fig. 149); terminal apophysis short, with distal margin essentially straight (Fig. 148).



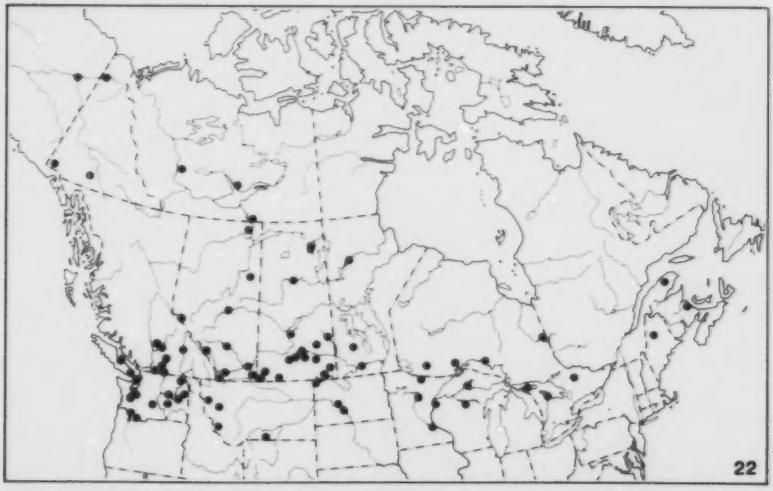
Figs. 148–151. Genitalia of *Zelotes puritanus*. 148, 149, palpus of male; 148, ventral view; 149, retrolateral view; 150, 151, epigynum and spermathecae; 150, ventral view; 151, dorsal view. *e*, embolus.

Female. Total length 5.78 ± 0.80 mm; carapace 2.30 ± 0.27 mm long, 1.80 ± 0.21 mm wide; femur II 1.34 ± 0.18 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.07, PLE 0.07, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.08, PME–PLE 0.07, ALE–PLE 0.06; median ocular quadrangle 0.22 long, 0.19 wide at front, 0.22 wide at back. Lateral and posterior epigynal margins together defining teardrop-shaped plate; anterior epigynal margin undivided (Fig. 150). Copulatory tubes short, funnel-shaped (Fig. 151).

Comments. Specimens of *Z. puritanus* can be distinguished from those of the other Canadian species of *Zelotes* by the combination of short retrolateral apophysis on the male palpal tibia, short thick embolus that lies on the median apophysis, short terminal apophysis, teardrop-shaped epigynal plate, and short funnel-shaped copulatory tubes.

Range. Alaska to New Brunswick, south to California, Arizona, New Mexico, and Massachusetts; Europe (Miller and Buchar 1977) and Asia (Ovtsharenko and Marusik 1988).

Biology. Mature males of *Z. puritanus* have been collected from late April to July, mature females from early May to late October. Individuals were collected by pitfall traps in aspen, scrub oak, fir, pine, and spruce forests; in beach litter, meadows, pastures, prairies, and sagebrush-covered hillsides; and individually under logs and stones. Collections were made at elevations of up to 4100 m.



Map 22. Collection localities of *Zelotes puritanus*.

Genus *Drassyllus* Chamberlin

Spiders belonging to the genus *Drassyllus* are rather small and, like most members of the family Gnaphosidae, drably colored inhabitants of leaf litter and cavities under stones or debris on the soil surface. Seldom seen unless such habitats are disturbed, they can best be collected by pitfall traps. Even this method, however, usually traps few individuals at one time and place, which suggests either scarcity of numbers or low mobility, or both.

The genus comprises many closely similar species, identification of which requires careful attention to minute details of genitalic structure. The species have been divided among several species groups, but these groups may be artificial and are not used here. Although no species are regarded as Holarctic, several European and Asian species of the genus are known.

Description. Total length 1.7–8.0 mm. Carapace ovoid in dorsal view, widest between coxae II and III, truncate posteriorly, flattened and abruptly narrowed anteriorly at level of palpi; carapace orange to dark brown, often with dark reticulations, and with long erect dark setae posterolaterally. Anterior row of eyes somewhat recurved from above; posterior row of eyes somewhat procurved from above; both rows procurved from front; anterior median eyes smallest, circular, dark; posterior median eyes largest, irregularly rectangular, light; lateral eyes oval, light; anterior median eyes separated by roughly their maximum width, almost touching anterior lateral eyes; posterior median eyes almost touching, separated from posterior lateral eyes by half their width or more; lateral eyes separated by half their width or more; median ocular quadrangle usually somewhat longer than wide, wider at back than at front. Chelicerae usually with 4 promarginal teeth and 3 retromarginal teeth. Palp-coxal lobes short, rectangular, obliquely depressed, greatly flattened so that they appear abruptly narrowed distal to origin of trochanter. Sternum ovoid, mesally with deep setal punctations. Legs orange to dark brown, lacking claw tufts; dark brown legs usually with lighter tarsi; tarsi IV with sparse scopula; trochanters not notched; basitarsi III and IV with preening comb; typical macrosetal pattern: femur I, II d1-1-0, p0-0-1, III d1-1-0, p0-1-1, r0-1-1, IV d1-1-0, p0-0-1, r0-0-1; patella III r0-1-0; tibia III p1-1-1, v1-2-2, r0-1-1, IV p1-1-1, v2-2-2, r1-1-1; basitarsus I, II v2-0-0, III p1-2-2, v2-0-0, r1-1-2, IV p1-2-2, v2-2-0, r1-2-1. Abdomen usually gray, rarely with dark median longitudinal band or with chevrons; males with brown scutum anteriorly. Male palpus (Figs. 152, 153, 156, 164) with stout pointed retrolateral tibial apophysis, with large prominent terminal apophysis situated near middle of genital bulb (this divided into elevated distally directed process and recessed base that often extends to retrolateral side of bulb), with large prolaterally situated embolar base that gives rise to transverse embolar process, with long coiled embolus that extends far retrolaterally and terminates distally,

with small retrolaterally situated median apophysis, and with subtegulum that extends ridge-like far along prolateral margin of bulb. Epigynum (Figs. 154, 158, 166) without hood, usually with median septum, and with distinct curved anterior epigynal margin; copulatory tubes (Figs. 155, 159, 167) long, often tortuous, broad or slender, arising laterally or anteriorly and extending far posteriorly; spermathecae rather small, round or ovoid, touching or nearly so, situated near posterior end of epigynum.

Comments. Members of the genus *Drassyllus* are distinguished from those of the other Canadian gnaphosid genera by the combined presence of a preening comb, large and nearly touching posterior median eyes, a large prominent terminal apophysis that subdivides into a distally directed process and a recessed base, and a long coiled embolus that extends to the retrolateral side of the genital bulb and terminates distally.

A world fauna of more than 75 species of *Drassyllus* is cataloged. Sixty are known from North America (Platnick and Shadab 1982), and 16 of these are represented in Canada.

Key to species of *Drassyllus*

1. Male 2

   Female 17

2(1). Palpal tibia with dorsal row of stout erect setae (retrolateral view, Figs. 153, 169, 173) 3

   Palpal tibia lacking dorsal row of stout erect setae, though slender setae may be present (Figs. 177, 185, 193) 8

3(2). Retrolateral tibial apophysis with tip abruptly angled dorsally (Fig. 153) ..... ***lamprus*** **(Chamberlin)** (p. 106)

   Retrolateral apophysis curved, straight, or angled at middle (Figs. 157, 161, 165) 4

4(3). Retrolateral apophysis blunt at tip (Figs. 157, 161) 5

   Retrolateral apophysis pointed at tip (Figs. 165, 169, 173) 6

5(4). Embolar base with broad deep excavation (Fig. 156) ..... ***depressus*** **(Emerton)** (p. 109)

   Embolar base with hardly discernible excavation (Fig. 160) ... ***eremitus*** **Chamberlin** (p. 111)

6(4). Terminal apophysis drawn out to acute point (Figs. 168, 172) 7

   Terminal apophysis blunt, with small excavation (Fig. 164) ..... ***socius*** **Chamberlin** (p. 113)

7(6). Embolus rather stout, nearly straight (retrolateral view, Fig. 169) ..... ***fallens*** **Chamberlin** (p. 114)

Embolus more slender, distinctly curved (Fig. 173) ..... ***nannellus*** **Chamberlin & Gertsch** (p. 116)

8(2). Terminal apophysis with tip cone-shaped (Figs. 176, 180, 184, 188) 9

Terminal apophysis with tip pointed or truncated; tip sometimes with minute excavation (Figs. 192, 196) 12

9(8). Embolar projection prolonged retrolaterally far beyond embolus (Figs. 176, 180) 10

Embolar projection shorter, at most somewhat prolonged beyond embolus (Figs. 184, 188) 11

10(9). Median apophysis large, with stout hooked spur (Fig. 176) ... . ***niger*** **(Banks)** (p. 118)

Median apophysis smaller, with slender hooked spur (Fig. 180) ..... ***eremophilus*** **Chamberlin & Gertsch** (p. 120)

11(9). Embolus strongly elbowed (Fig. 184); retrolateral tibial apophysis stout, abruptly narrowed at tip (Fig. 185) .... ***insularis*** **(Banks)** (p. 121)

Embolus more smoothly curved (Fig. 188); retrolateral tibial apophysis gradually tapered from base to tip (Fig. 189); .... ***saphes*** **Chamberlin** (p. 124)

12(8). Embolus long, with distal part visible from level of median apophysis (ventral view, Figs. 192, 196, 200) 13

Embolus shorter, with distal part visible only from point distal to median apophysis (ventral view, Figs. 204, 208, 212) 15

13(12). Terminal apophysis broadly truncate (Fig. 192) .... ***rufulus*** **(Banks)** (p. 126)

Terminal apophysis pointed (Figs. 196, 200) 14

14(13). Terminal apophysis with minute point (Fig. 196) .... ***novus*** **(Banks)** (p. 128)

Terminal apophysis with larger point (Fig. 200) .... ***aprilinus*** **(Banks)** (p. 130)

15(12). Terminal apophysis with short point (Fig. 204) .... ***frigidus*** **(Banks)** (p. 131)

Terminal apophysis with longer point (Figs. 208, 212) 16

16(15). Median apophysis strongly folded upon itself (retrolateral view, Fig. 209) ..... ***creolus*** **Chamberlin & Gertsch** (p. 133)

Median apophysis not folded (Fig. 213) ..... ***dromeus*** **Chamberlin** (p. 135)

17(1). Median septum flask-shaped, with anterior piece slender and with posterior piece bulbous (Figs. 154, 162, 174) 18

Median septum with anterior piece broader (Figs. 178, 194, 198) or septum not developed (Fig. 202) 28

18(17). Median septum rounded at posterior end (Figs. 154, 162, 166) 19

Median septum flattened or angular at posterior end (Figs. 158, 206) 26

19(18). Anterior epigynal margin angular or transverse (Figs. 162, 166, 170) 20

Anterior epigynal margin dome-shaped (Figs. 154, 182, 214), arched posteriorly (Fig. 186), or short and crescent-shaped (Fig. 190) 22

20(19). Lateral epigynal margins greatly elongated, extending nearly as far as posterior end of median septum (Fig. 166); copulatory tubes slender (Fig. 167) ..... ***socius*** **Chamberlin** (p. 113)

Lateral epigynal margins shorter, extending less than one-half as far as posterior end of median septum (Figs. 162, 170); copulatory tubes thicker (Figs. 163, 171) 21

21(20). Lateral epigynal margins distinctly diverging posteriorly (Fig. 170) ..... ***fallens*** **Chamberlin** (p. 114)

Lateral epigynal margins less diverging (Fig. 162) ..... ***eremitus*** **Chamberlin** (p. 111)

22(19). Anterior epigynal margin dome-shaped, sometimes indistinct (Figs. 154, 182, 214) 23

Anterior epigynal margin arched posteriorly or short and crescent-shaped (Figs. 186, 190) 25

23(22). Anterior epigynal margin broadly domed, sometimes indistinct (Fig. 182) .. ***eremophilus*** **Chamberlin & Gertsch** (p. 120)

Anterior epigynal margin narrowly domed (Figs. 154, 214) 24

24(23). Lateral epigynal margins smoothly convex (Fig. 154); copulatory tubes parallel for much of their length (Fig. 155) ..... ***lamprus* (Chamberlin)** (p. 106)

Lateral epigynal margins interrupted at anterior ends by copulatory openings (Fig. 214); copulatory tubes converging posteriorly (Fig. 215) ..... ***dromeus* Chamberlin** (p. 135)

25(22). Anterior epigynal margin arched posteriorly (Fig. 186) ..... ***insularis* (Banks)** (p. 121)

Anterior epigynal margin narrow, crescent-shaped (Fig. 190) ..... ***saphes* Chamberlin** (p. 124)

26(18). Median septum flattened at posterior end (Figs. 158, 174) ... 27

Median septum angular at posterior end (Fig. 206) ..... ***frigidus* (Banks)** (p. 131)

27(26). Lateral epigynal margins sinuous (Fig. 158); copulatory tubes tortuous (Fig. 159) ..... ***depressus* (Emerton)** (p. 109)

Lateral epigynal margins straight (Fig. 174); copulatory tubes sinuous (Fig. 175) ..... ***nannellus* Chamberlin & Gertsch** (p. 116)

28(17). Median septum flattened at posterior end (Figs. 178, 198) ... 29

Median septum rounded at posterior end (Figs. 194, 210) or not developed (Fig. 202) 30

29(28). Median septum short and broad (Fig. 178); copulatory tubes kidney-shaped (Fig. 179) ..... ***niger* (Banks)** (p. 118)

Median septum longer, appearing rectangular (Fig. 198); copulatory tubes arched mesally (Fig. 199) ..... ***novus* (Banks)** (p. 128)

30(28). Anterior epigynal margin arched posteriorly (Fig. 194) ..... ***rufulus* (Banks)** (p. 126)

Anterior epigynal margin arched anteriorly (Fig. 202, 210) ... 31

31(30). Median septum and lateral epigynal margins well developed (Fig. 210); copulatory tubes thick, somewhat sinuous (Fig. 211) ..... ***creolus* Chamberlin & Gertsch** (p. 133)

Median septum and lateral epigynal margins absent (Fig. 202); copulatory tubes slender, coiled (Fig. 203) ..... ***aprilinus* (Banks)** (p. 130)

Clé des espèces de *Drassyllus*

1. Mâle 2

   Femelle 17

2(1). Tibia palpal pourvu d'une rangée dorsale de soies épaisses et dressées (vue rétrolatérale, fig. 153, 169, 173) 3

   Tibia palpal dépourvu d'une rangée dorsale de soies épaisses et dressées, mais présence possible de soies effilées (fig. 177, 185, 193) 8

3(2). Apophyse tibiale rétrolatérale dont l'extrémité présente un angle abrupt dorsalement (fig. 153) ..... ***lamprus* (Chamberlin)** (p. 106)

   Apophyse rétrolatérale courbée, droite ou anguleuse au milieu (fig. 157, 161, 165) 4

4(3). Apophyse rétrolatérale émoussée à l'extrémité (fig. 157, 161) 5

   Apophyse rétrolatérale pointue à l'extrémité (fig. 165, 169, 173) 6

5(4). Base embolaire pourvue d'une cavité large et profonde (fig. 156) ..... ***depressus* (Emerton)** (p. 109)

   Base embolaire pourvue d'une cavité difficilement discernable (fig. 160) ..... ***eremitus* Chamberlin** (p. 111)

6(4). Apophyse terminale qui se prolonge en pointe aiguë (fig. 168, 172) 7

   Apophyse terminale émoussée, pourvue d'une petite cavité (fig. 164) ..... ***socius* Chamberlin** (p. 113)

7(6). Embolus plutôt épais, presque droit (vue rétrolatérale, fig. 169) ..... ***fallens* Chamberlin** (p. 114)

   Embolus plus effilé, nettement courbé (fig. 173) ..... ***nannellus* Chamberlin & Gertsch** (p. 116)

8(2). Apophyse terminale à extrémité en forme de cône (fig. 176, 180, 184, 188) 9

   Apophyse terminale à extrémité pointue ou tronquée; extrémité parfois munie d'une cavité minuscule (fig. 192, 196) 12

9(8). Projection embolaire qui se prolonge rétrolatéralement loin au-delà de l'embolus (fig. 176, 180) 10

   Projection embolaire plus courte, à peine plus longue au-delà de l'embolus (fig. 184, 188) 11

10(9). Apophyse médiane grosse, munie d'un éperon épais et pourvu d'un crochet (fig. 176) ..... ***niger*** **(Banks)** (p. 118)

Apophyse médiane plus petite, munie d'un éperon effilé et pourvu d'un crochet (fig. 180) ..... ***eremophilus*** **Chamberlin & Gertsch** (p. 120)

11(9). Embolus fortement coudé (fig. 184); apophyse tibiale rétrolatérale épaisse, rétrécissant brusquement à l'extrémité (fig. 185) ..... ***insularis*** **(Banks)** (p. 121)

Embolus plus faiblement courbé (fig. 188); apophyse tibiale rétrolatérale rétrécissant graduellement de la base à l'extrémité (fig. 189) ..... ***saphes*** **Chamberlin** (p. 124)

12(8). Embolus long, dont la partie distale est visible du niveau de l'apophyse médiane (vue ventrale, fig. 192, 196, 200) 13

Embolus plus court, dont la partie distale n'est visible qu'à partir d'un point distal par rapport à l'apophyse médiane (vue ventrale, fig. 204, 208, 212) 15

13(12). Apophyse terminale largement tronquée (fig. 192) ..... ***rufulus*** **(Banks)** (p. 126)

Apophyse terminale pointue (fig. 196, 200) 14

14(13). Apophyse terminale pourvue d'une pointe minuscule (fig. 196) ..... ***novus*** **(Banks)** (p. 128)

Apophyse terminale pourvue d'une pointe plus grande (fig. 200) ..... ***aprilinus*** **(Banks)** (p. 130)

15(12). Apophyse terminale pourvue d'une pointe courte (fig. 204) ..... ***frigidus*** **(Banks)** (p. 131)

Apophyse terminale pourvue d'une pointe plus longue (fig. 208, 212) 16

16(15). Apophyse médiane fortement repliée sur elle-même (vue rétrolatérale, fig. 209) ..... ***creolus*** **Chamberlin & Gertsch** (p. 133)

Apophyse médiane non repliée (fig. 213) ..... ***dromeus*** **Chamberlin** (p. 135)

17(1). Septum médian en forme de flacon, dont la pièce antérieure est effilée et la pièce postérieure, bulbeuse (fig. 154, 162, 174) 18

Septum médian dont la pièce antérieure est plus large (fig. 178, 194, 198) ou septum non développé (fig. 202) 28

18(17). Septum médian plutôt rond à l'extrémité postérieure (fig. 154, 162, 166) 19

Septum médian plutôt plat ou anguleux à l'extrémité postérieure (fig. 158, 206) 26

19(18). Marge épigynale antérieure anguleuse ou transverse (fig. 162, 166, 170) 20

Marge épigynale antérieure en forme de dôme (fig. 154, 182, 214), arquée postérieurement (fig. 186) ou courte et en forme de croissant (fig. 190) 22

20(19). Marges épigynales latérales très longues, s'étendant presque aussi loin que l'extrémité postérieure du septum médian (fig. 166); tubes copulateurs effilés (fig. 167) ..... ***socius* Chamberlin** (p. 113)

Marges épigynales latérales plus courtes, s'étendant moins de la moitié moins loin que l'extrémité postérieure du septum médian (fig. 162, 170); tubes copulateurs plus épais (fig. 163, 171) ... 21

21(20). Marges épigynales latérales divergeant nettement postérieurement (fig. 170) ..... ***fallens* Chamberlin** (p. 114)

Marges épigynales latérales divergeant moins (fig. 162) ..... ***eremitus* Chamberlin** (p. 111)

22(19). Marge épigynale antérieure en forme de dôme, parfois indistincte (fig. 154, 182, 214) 23

Marge épigynale antérieure arquée vers l'arrière ou courte et en forme de croissant (fig. 186, 190) 25

23(22). Marge épigynale antérieure largement bombée, parfois indistincte (fig. 182) ..... ***eremophilus* Chamberlin & Gertsch** (p. 120)

Marge épigynale antérieure étroitement bombée (fig. 154, 214) 24

24(23). Marges épigynales latérales faiblement convexes (fig. 154); tubes copulateurs parallèles sur la majeure partie de leur longueur (fig. 155) ..... ***lamprus* (Chamberlin)** (p. 106)

Marges épigynales latérales interrompues aux extrémités antérieures par les orifices copulateurs (fig. 214); tubes copulateurs convergeant postérieurement (fig. 215) ..... ***dromeus* Chamberlin** (p. 135)

25(22). Marge épigynale antérieure arquée vers l'arrière (fig. 186) .. ***insularis* (Banks)** (p. 121)

Marge épigynale antérieure étroite, en forme de croissant (fig. 190) ..... ***saphes* Chamberlin** (p. 124)

26(18). Septum médian plutôt plat à l'extrémité postérieure (fig. 158, 174) 27

Septum médian anguleux à l'extrémité postérieure (fig. 206) ..... ***frigidus*** **(Banks)** (p. 131)

27(26). Marges épigynales latérales sinueuses (fig. 158); tubes copulateurs tortueux (fig. 159) ..... ***depressus*** **(Emerton)** (p. 109)

Marges épigynales latérales droites (fig. 174); tubes copulateurs sinueux (fig. 175) ..... ***nannellus*** **Chamberlin & Gertsch** (p. 116)

28(17). Septum médian plutôt plat à l'extrémité postérieure (fig. 178, 198) 29

Septum médian plutôt rond à l'extrémité postérieure (fig. 194, 210) ou à peine esquissé (fig. 202) 30

29(28). Septum médian court et large (fig. 178); tubes copulateurs en forme de rein (fig. 179) ..... ***niger*** **(Banks)** (p. 118)

Septum médian plus long, en apparence rectangulaire (fig. 198); tubes copulateurs arqués au milieu (fig. 199) ..... ***novus*** **(Banks)** (p. 128)

30(28). Marge épigynale antérieure postérieurement arquée (fig. 194) ..... ***rufulus*** **(Banks)** (p. 126)

Marge épigynale antérieure arquée antérieurement (fig. 202, 210) 31

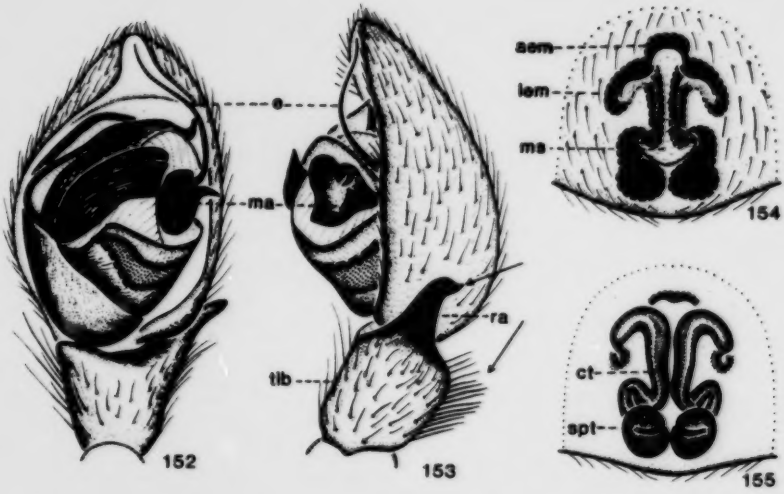
31(30). Septum médian et marges épigynales latérales bien développées (fig. 210); tubes copulateurs épais, plutôt sinueux (fig. 211) ... . ***creolus*** **Chamberlin & Gertsch** (p. 133)

Septum médian et marges épigynales absentes (fig. 202); tubes copulateurs effilés, enroulés (fig. 203) ..... ***aprilinus*** **(Banks)** (p. 130)

Drassyllus lamprus (Chamberlin)

Figs. 152–155; Map 23

Zelotes lampra Chamberlin, 1920:193, fig. 3.
Drassyllus lamprus: Chamberlin 1922:171; Platnick and Shadab 1982:19, figs. 42–47.
Nodocion zelotoides Worley, 1928:621, fig. 4.
Nodocion moronius Chamberlin, 1936b:5, fig. 21.



Figs. 152–155. Genitalia of *Drassyllus lamprus*. 152, 153, palpus of male; 152, ventral view; 153, retrolateral view; 154, 155, epigynum and spermathecae; 154, ventral view; 155, dorsal view. *aem*, anterior epigynal margin; *ct*, copulatory tube; *e*, embolus; *lem*, lateral epigynal margin; *ma*, median apophysis; *ms*, median septum; *ra*, retrolateral tibial apophysis; *spt*, spermatheca; *tib*, tibia.

Male. Total length 3.26 ± 0.31 mm; carapace 1.46 ± 0.10 mm long, 1.16 ± 0.10 mm wide; femur II 0.91 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.06, PME 0.09, PLE 0.07, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.18 long, 0.15 wide at front, 0.20 wide at back. Palpal tibia with dorsal row of setae dorsally; setae stout, erect; retrolateral apophysis rather short and stout, abruptly angled dorsally at tip (Fig. 153); embolus long, slender, somewhat curved; terminal apophysis blunt, convex along distal margin, and not extending to embolus; median apophysis irregular in shape, with slender pointed process (Figs. 152, 153).

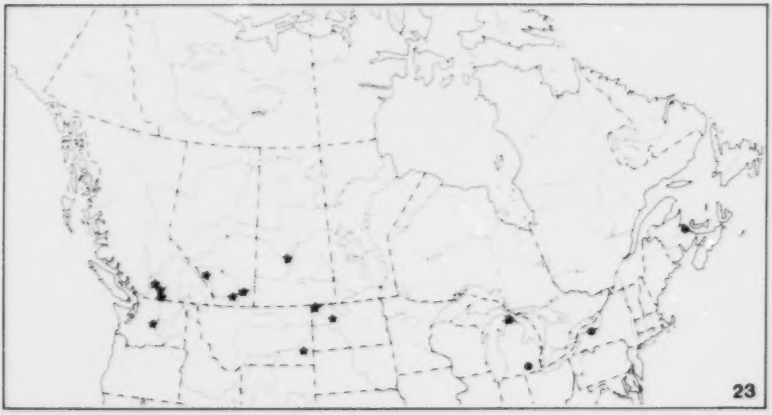
Female. Total length 3.48 ± 0.61 mm; carapace 1.58 ± 0.12 mm long, 1.20 ± 0.10 mm wide; femur II 1.00 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.07, PME 0.09, PLE 0.06, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.21 long, 0.13 wide at front, 0.21 wide at back. Epigynum with flask-shaped median septum, with narrowly domed anterior epigynal margin, and with smoothly convex lateral epigynal margins (Fig. 154); copulatory tubes long, rather thick, extending mesally then posteriorly in

parallel fashion, abruptly curved at posterior end; spermathecae small, round (Fig. 155).

Comments. Males of *D. lamprus* are distinguished from those of the other species of *Drassyllus* in Canada by the following combination of characters: palpal tibia with stout setae and retrolateral tibial apophysis abruptly angled. Females are distinguished by the following combination of characters: median septum flask-shaped, anterior epigynal margin narrowly domed, lateral epigynal margins smoothly convex, and copulatory tubes each with long parallel section.

Range. Southern British Columbia to southern Saskatchewan, south to central Mexico.

Biology. Mature males of *D. lamprus* have been taken from May to July and in October, mature females from late March to August. Specimens have been collected under stones in dry fields and prairies and on river banks; this species has been associated with alfalfa, juniper, mesquite, nolina, pinyon pine, sagebrush, yucca, and lichens, at elevations of up to 3050 m.



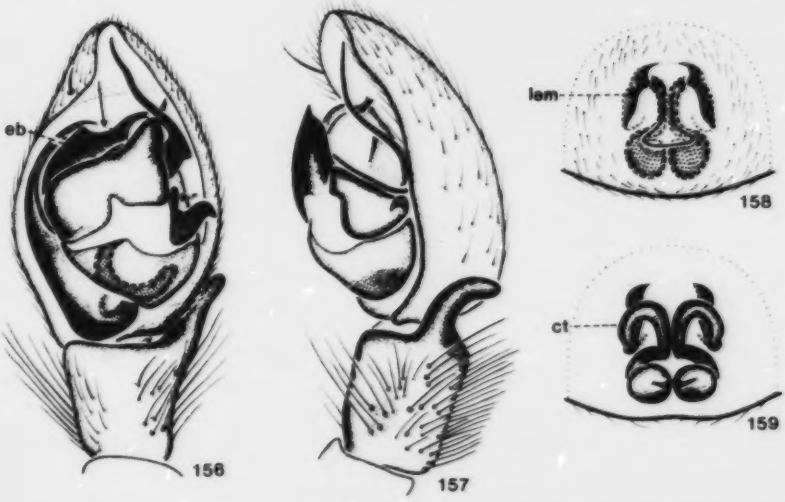
Map 23. Collection localities of *Drassyllus lamprus* (★) and *D. eremophilus* (●).

Drassyllus depressus (Emerton)

Figs. 156–159; Map 24

Prosthesima depressa Emerton, 1890:9, figs. 8, 8a (pl. 3).
Drassyllus depressus: Chamberlin 1922:167; Kaston 1948:359, figs. 1209, 1210 (pl. 62); Platnick and Shadab 1982:12, figs. 18-23.

Male. Total length 3.99 ± 0.28 mm; carapace 1.78 ± 0.12 mm long, 1.42 ± 0.12 mm wide; femur II 1.16 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.08, PME 0.09, PLE 0.08, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.21 long, 0.15 wide at front, 0.20 wide at back. Palpal tibia with dorsal row of stout erect setae; retrolateral apophysis curved dorsally in distal half and blunt at tip (Fig. 157); embolus elbowed, long, slender, curved; embolar base with broad excavation in distal margin; terminal apophysis large, with blunt point (Figs. 156, 157).



Figs. 156–159. Genitalia of *Drassyllus depressus*. 156, 157, palpus of male; 156, ventral view; 157, retrolateral view; 158, 159, epigynum and spermathecae; 158, ventral view; 159, dorsal view. *eb*, embolar base; *ct*, copulatory tube; *lem*, lateral epigynal margin.

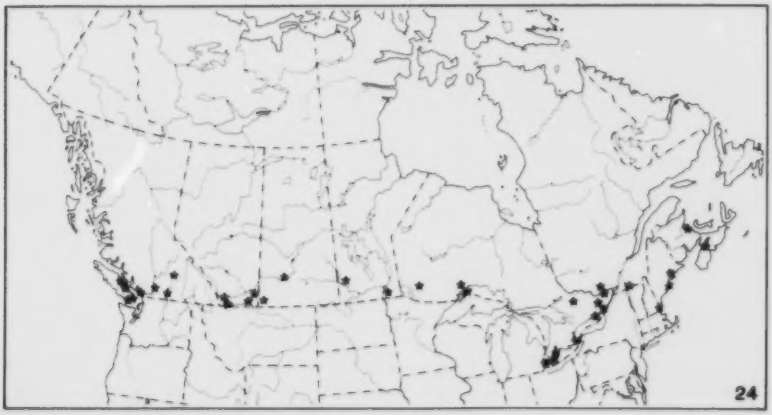
Female. Total length 4.59 ± 0.75 mm; carapace 1.74 ± 0.13 mm long, 1.38 ± 0.10 mm wide; femur II 1.14 ± 0.06 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME

0.05, ALE 0.08, PME 0.10, PLE 0.08, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.23 long, 0.18 wide at front, 0.22 wide at back. Epigynum with median septum flask-shaped and having flattened posterior end; anterior epigynal margin rather broad, indistinct; lateral epigynal margins sinuous, long (Fig. 158); copulatory tubes long, rather slender, tortuous; spermathecae small, rounded, nearly touching (Fig. 159).

Comments. Males of *D. depressus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: palpal tibia with dorsal row of stout setae, retrolateral apophysis blunt and curved dorsally, and embolar base with broad excavation. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly flattened, lateral epigynal margins sinuous, and copulatory tubes tortuous.

Range. Southern British Columbia to Nova Scotia, south to Arizona, New Mexico, Arkansas, and Virginia.

Biology. Mature males of *D. depressus* have been taken from late April to late September, mature females in January, March, and from May to late August. Individuals have been collected by vacuum and pitfall traps; under boards, stones, and similar objects on the ground; in meadows, prairies, marshes, bogs, and quarries; and in oak-hickory, hawthorn, and coniferous forests. Elevations of up to 3000 m are recorded.



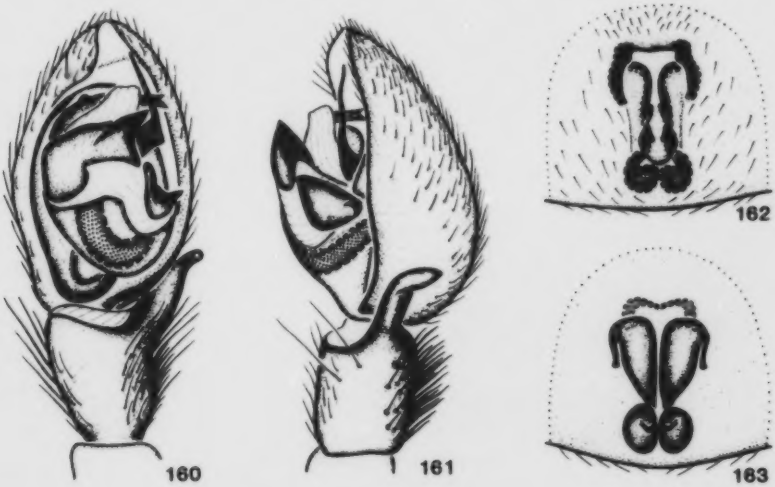
Map 24. Collection localities of *Drassyllus depressus*.

Drassyllus eremitus Chamberlin

Figs. 160–163; Map 25

Drassyllus eremitus Chamberlin, 1922:167; Platnick and Shadab 1982:11, figs. 12–17.

Male. Total length 3.49 ± 0.32 mm; carapace 1.58 ± 0.06 mm long, 1.24 ± 0.05 mm wide; femur II 1.01 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.08, PME 0.10, PLE 0.09, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.01, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.22 long, 0.16 wide at front, 0.21 wide at back. Palpal tibia with dorsal row of stout setae; retrolateral apophysis rather long and stout, angled dorsally, blunt at tip (Fig. 161); embolus elbowed, long, rather slender, somewhat sinuous; embolar base with hardly discernible excavation on distal margin; terminal apophysis large, with sharp point (Figs. 160, 161).



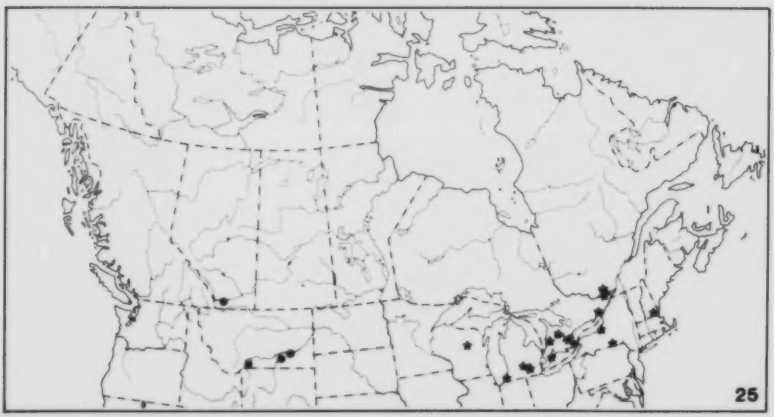
Figs. 160–163. Genitalia of *Drassyllus eremitus*. 160, 161, palpus of male; 160, ventral view; 161, retrolateral view; 162, 163, epigynum and spermathecae; 162, ventral view; 163, dorsal view.

Female. Total length 3.75 ± 0.34 mm; carapace 1.59 ± 0.13 mm long, 1.24 ± 0.09 mm wide; femur II 1.01 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.07, PME 0.10, PLE 0.08, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.01, PME–PLE 0.03, ALE–PLE 0.04; median ocular quadrangle 0.23 long, 0.18 wide at front, 0.21 wide at back. Epigynum with flask-shaped median septum having rounded posterior margin; anterior epigynal margin transverse; lateral epigynal margins short, somewhat sinuous, somewhat diverging posteriorly (Fig. 162); copulatory tubes thick, nearly touching, tapering posteriorly; spermathecae small, ovoid, nearly touching (Fig. 163).

Comments. Males of *D. eremitus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: palpal tibia with dorsal row of stout setae, retrolateral apophysis blunt and angled dorsally near middle, and embolar base with hardly discernible excavation on distal margin. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, anterior epigynal margin transverse, and lateral epigynal margins short and somewhat diverging posteriorly.

Range. Wisconsin to southern Quebec and Massachusetts, south to Louisiana and Florida.

Biology. Mature males have been taken from February to August and in October, mature females from March to August and in December. Individuals have been collected by pitfall traps, in leaf litter, in marshes and bogs, and in deciduous and coniferous forests.



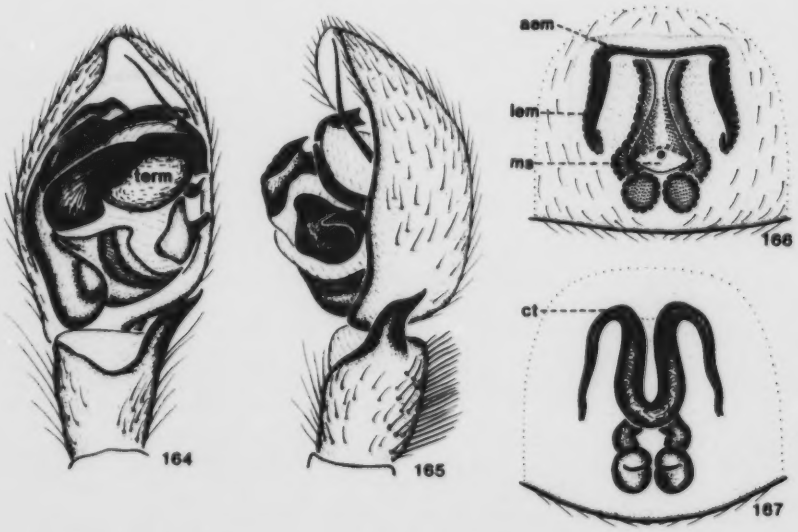
Map 25. Collection localities of *Drassyllus eremitus* (★) and *D. nannellus* (●).

Drassyllus socius Chamberlin

Figs. 164–167; Map 28

Drassyllus socius Chamberlin, 1922:167; Kaston 1948:361, figs. 1231, 1232 (pl. 64); Platnick and Shadab 1982:15, figs. 24–29.

Male. Total length 3.40 ± 0.31 mm; carapace 1.45 ± 0.08 mm long, 1.18 ± 0.06 mm wide; femur II 0.88 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.08, PLE 0.07, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.03, ALE–PLE 0.04; median ocular quadrangle 0.19 long, 0.14 wide at front, 0.18 wide at back. Palpal tibia with dorsal row of stout setae; retrolateral apophysis short, somewhat curved, pointed (Fig. 165); embolus elbowed, long, slender, somewhat curved; embolar base with shallow excavation in distal margin; terminal apophysis large, rather blunt, with minute excavation (Figs. 164, 165).



Figs. 164–167. Genitalia of *Drassyllus socius*. 164, 165, palpus of male; 164, ventral view; 165, retrolateral view; 166, 167, epigynum and spermathecae; 166, ventral view; 167, dorsal view. *aem*, anterior epigynal margin; *ct*, copulatory tube; *lem*, lateral epigynal margin; *ms*, median septum; *term*, terminal apophysis.

Female. Total length 4.15 ± 0.41 mm; carapace 1.48 ± 0.06 mm long, 1.17 ± 0.05 mm wide; femur II 0.93 ± 0.06 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.07, PME 0.08, PLE 0.08, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.21 long, 0.13 wide at front, 0.17 wide at back. Epigynum with flask-shaped median septum having rounded posterior end; anterior epigynal margin broad, transverse; lateral epigynal margins long, extending posterially nearly as far as posterior end of median septum (Fig. 166); copulatory tubes long, rather slender, looped at anterior ends; spermathecae small, ovoid, nearly touching (Fig. 167).

Comments. Males of *D. socius* are distinguished from those of the other Canadian species in the genus by the following combination of characters: palpal tibia with dorsal row of stout setae, retrolateral apophysis pointed, and terminal apophysis with small excavation. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, anterior epigynal margin transverse, lateral epigynal margins greatly elongated, and copulatory tubes rather slender.

Range. Ontario to Nova Scotia, south to Iowa and Pennsylvania.

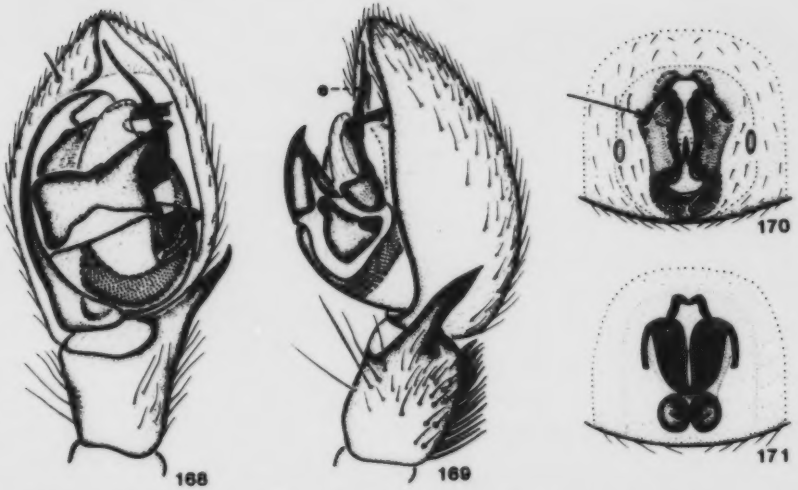
Biology. Mature males and females have been taken from May to August. Collections were made by pitfall traps in abandoned fields, meadows, and deciduous and coniferous forests. A pair was found with a pink egg sac in a rotting tree stump at Kazabazua, Que., in early June.

Drassyllus fallens Chamberlin

Figs. 168–171; Map 27

Drassyllus fallens Chamberlin, 1922:166; Kaston 1948:361, figs. 1223, 1224 (pl. 63); Platnick and Shadab 1982:9, figs. 6–11.

Male. Total length 3.94 ± 0.29 mm; carapace 1.74 ± 0.11 mm long, 1.40 ± 0.08 mm wide; femur II 1.07 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.07, PME 0.10, PLE 0.08, AME–AME 0.07, AME–ALE 0.01, PME–PME 0.00, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.22 long, 0.19 wide at front, 0.20 wide at back. Palpal tibia with dorsal row of stout setae; retrolateral apophysis rather short, pointed (Fig. 169); embolus elbowed, long, rather stout, somewhat curved in ventral view and nearly straight in retrolateral view; terminal apophysis drawn out to finely truncate point (Figs. 168, 169).



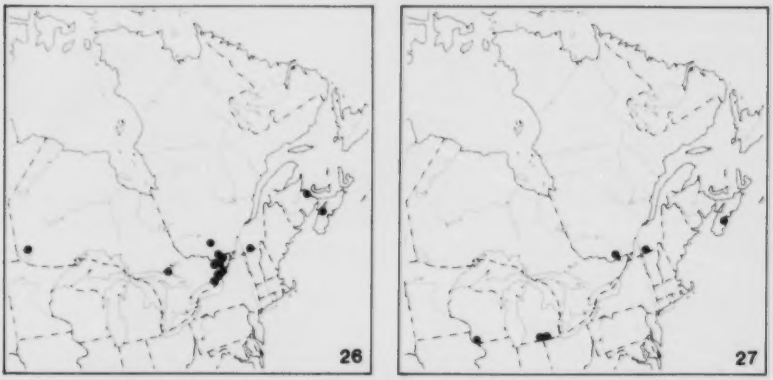
Figs. 168–171. Genitalia of *Drassyllus fallens*. 168, 169, palpus of male; 168, ventral view; 169, retrolateral view; 170, 171, epigynum and spermathecae; 170, ventral view; 171, dorsal view. *e*, embolus.

Female. Total length 4.30 ± 0.77 mm; carapace 1.72 ± 0.13 mm long, 1.36 ± 0.10 mm wide; femur II 1.09 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.10, PLE 0.07, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.01, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.23 long, 0.16 wide at front, 0.20 wide at back. Epigynum with flask-shaped median septum having rounded posterior end; anterior epigynal margin narrow, transverse; lateral epigynal margins rather short, distinctly diverging posteriorly (Fig. 170); copulatory tubes thick, nearly touching, nearly parallel; spermathecae small, ovoid, touching (Fig. 171).

Comments. Males of *D. fallens* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: palpal tibia with dorsal row of stout setae, retrolateral apophysis pointed, embolus nearly straight in retrolateral view, and terminal apophysis drawn out to slender minutely truncate point. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, anterior epigynal margin transverse, lateral epigynal margins short and distinctly diverging, and copulatory tubes thick.

Range. Wisconsin to southern Quebec and Nova Scotia, south to northwestern Georgia.

Biology. Mature males have been taken from March to July, mature females from March to early August. Collections were made by pitfall traps in deciduous forests.



Maps 26, 27. Collection localities of *Drassyllus* spp. 26, *D. socius*; 27, *D. fallens*.

Drassyllus nannellus Chamberlin & Gertsch

Figs. 172–175; Map 25

Drassyllus nannellus Chamberlin and Gertsch, 1940:11, fig. 33; Platnick and Shadab 1982:16, figs. 30–35.

Male. Total length 2.68 ± 0.23 mm; carapace 1.15 ± 0.08 mm long, 0.91 ± 0.07 mm wide; femur II 0.70 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.07, PLE 0.06, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.03, ALE–PLE 0.03; median ocular quadrangle 0.15 long, 0.13 wide at front, 0.16 wide at back. Palpal tibia with dorsal row of stout setae; retrolateral apophysis rather short, stout, drawn out to sharp point (Fig. 173); embolus elbowed, rather slender, distinctly curved in retrolateral view; embolar base oblique; terminal apophysis drawn out to sharp point (Figs. 172, 173).

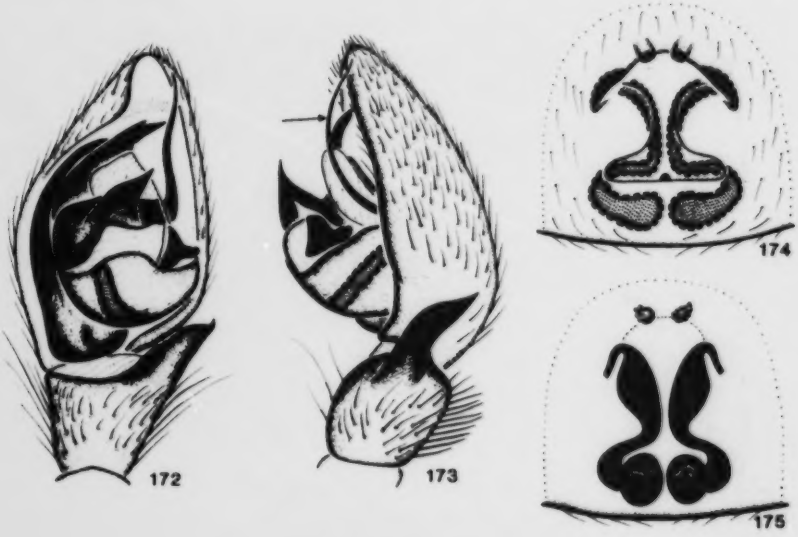
Female. Total length 2.94 ± 0.30 mm; carapace 1.20 ± 0.09 mm long, 0.93 ± 0.08 mm wide; femur II 0.71 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.06, PLE 0.06, AME–AME 0.04, AME–ALE 0.01, PME–PME 0.03, PME–PLE 0.02, ALE–PLE 0.03; median ocular quadrangle 0.17 long, 0.13 wide at front, 0.15 wide at back. Epigynum with flask-shaped median septum having flattened posterior end; anterior

epigynal margin broadly domed, with paired small prominences; lateral epigynal margins diverging posteriorly (Fig. 174); copulatory tubes long, somewhat sinuous, with swelling near anterior end; spermathecae small, ovoid, nearly touching (Fig. 175).

Comments. Males of *D. nannellus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: palpal tibia with dorsal row of stout setae, retrolateral apophysis pointed, embolus slender and curved, and terminal apophysis pointed. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly flattened, anterior epigynal margins with paired small prominences, lateral epigynal margins diverging, and copulatory tubes sinuous.

Range. Alberta and Montana to Ohio, south to Utah, Colorado, and Missouri.

Biology. Mature males have been collected in June and July, mature females from April to August. Individuals have been collected under stones and litter on the ground and in prairies and sagebrush habitats.

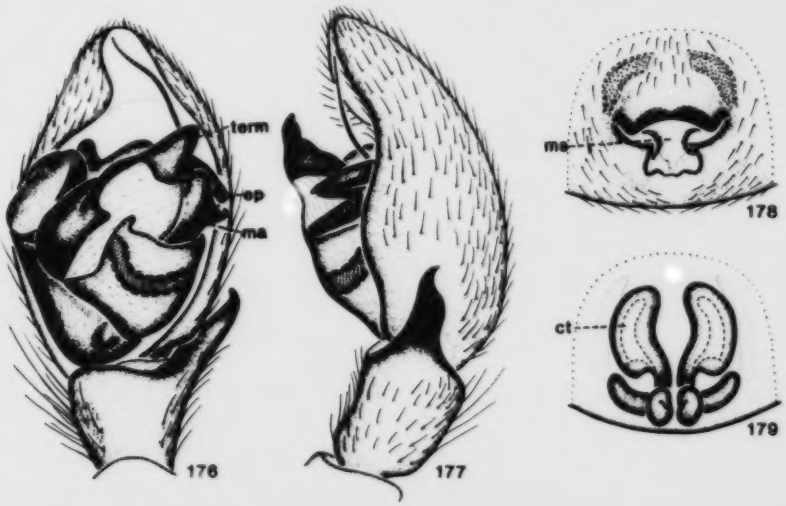


Figs. 172–175. Genitalia of *Drassyllus nannellus*. 172, 173, palpus of male; 172, ventral view; 173, retrolateral view; 174, 175, epigynum and spermathecae; 174, ventral view; 175, dorsal view.

Drassyllus niger (Banks)

Figs. 176–179; Map 28

Prosthesima niger Banks, 1896*b*:62.
Prosthesima transversa Emerton, 1911:406, figs. 9, 9*a*, 9*b* (pl. 5).
Drassyllus niger: Chamberlin 1922:170; Kaston 1948:359, figs. 1206–1208 (pl. 62); Platnick and Shadab 1982:37, figs. 94–99.



Figs. 176–179. Genitalia of *Drassyllus niger*. 176, 177, palpus of male; 176, ventral view; 177, retrolateral view; 178, 179, epigynum and spermathecae; 178, ventral view; 179, dorsal view. *ct*, copulatory tube; *ep*, embolar projection; *ma*, median apophysis; *ms*, median septum; *term*, terminal apophysis.

Male. Total length 4.78 ± 0.27 mm; carapace 2.23 ± 0.15 mm long, 1.79 ± 0.12 mm wide; femur II 1.50 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.10, PME 0.15, PLE 0.09, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.29 long, 0.23 wide at front, 0.32 wide at back. Retrolateral apophysis rather short, stout, becoming slender and hooked at tip (Fig. 177); embolus long, slender, somewhat curved; embolar projection long, with hooked tip lying parallel to stout hooked spur on large median apophysis; terminal apophysis oblique, with conical tip (Figs. 176, 177).

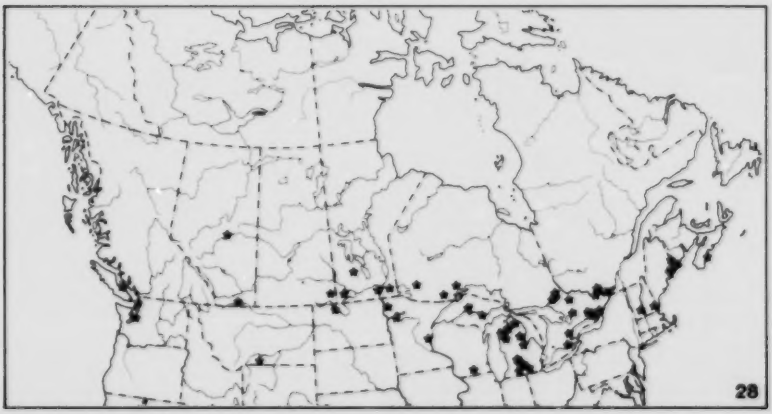
Female. Total length 6.50 ± 0.60 mm; carapace 2.49 ± 0.11 mm long, 1.95 ± 0.07 mm wide; femur II 1.71 ± 0.09 mm long (10 specimens

measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.13, PLE 0.08, AME–AME 0.08, AME–ALE 0.03, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.27 long, 0.22 wide at front, 0.27 wide at back. Epigynum with median septum short, broad, flattened at posterior end; anterior epigynal margin broad, with angulate prominences at ends; lateral epigynal margins arched toward median septum (Fig. 178); copulatory tubes long, thick, kidney-shaped, with lateral processes at posterior end; spermathecae small, ovoid, nearly touching (Fig. 179).

Comments. Males of *D. niger* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: terminal apophysis with cone-shaped tip, embolar projection long and with stout hook that lies parallel to similar hook on large median apophysis, and terminal apophysis with conical tip. Females are distinguished by the following combination of characters: median septum short, broad, and posteriorly flattened, and copulatory tubes kidney-shaped.

Range. British Columbia to Nova Scotia, south to California, Illinois, and Pennsylvania.

Biology. Mature males and females have been taken from April to early September. Specimens have been collected by vacuum samplers and pitfall traps in meadows, pastures, and bogs; in pine and oak-hickory forests; and under boards and stones on the ground.



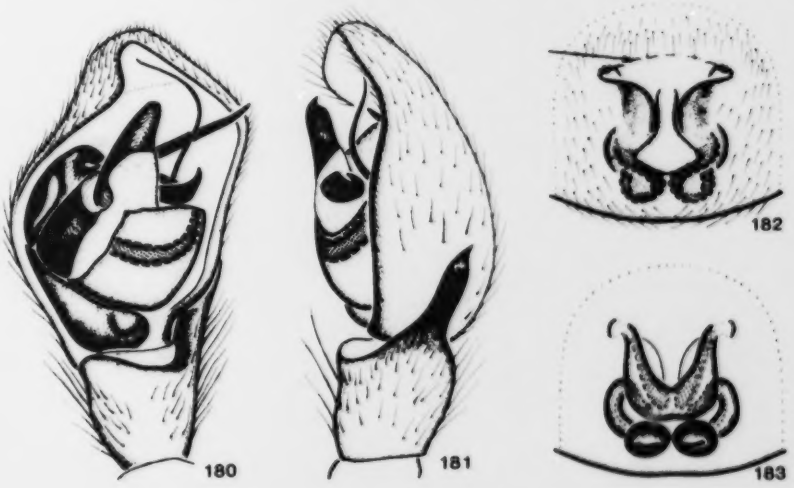
Map 28. Collection localities of *Drassyllus niger*.

Drassyllus eremophilus Chamberlin & Gertsch

Figs. 180–183; Map 23

Drassyllus eremophilus Chamberlin and Gertsch, 1940:15, figs. 18, 19; Platnick and Shadab 1982:39, figs. 100, 102–105.

Male. Total length 4.00, 4.64 mm; carapace 1.81, 2.00 mm long, 1.39, 1.58 mm wide; femur II 1.19, 1.37 mm long (two specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.09, PLE 0.09, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.01, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.28 long, 0.22 wide at front, 0.19 wide at back. Retrolateral apophysis rather long, stout, pointed (Fig. 181); embolus long, slender, curved; embolar projection prolonged retrolaterally far beyond embolus and essentially straight; terminal apophysis approximately longitudinal, with conical tip; median apophysis small, with slender hooked spur (Figs. 180, 181).



Figs. 180–183. Genitalia of *Drassyllus eremophilus*. 180, 181, palpus of male; 180, ventral view; 181, retrolateral view; 182, 183, epigynum and spermathecae; 182, ventral view; 183, dorsal view.

Female. Total length 4.07–5.70 mm; carapace 1.87–2.20 mm long, 1.39–1.69 mm wide; femur II 1.31–1.57 mm long (five specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.11, PME 0.14, PLE 0.10, AME–AME 0.08, AME–ALE 0.03, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.32 long, 0.26 wide at front, 0.30 wide at back. Epigynum with flask-shaped posteriorly rounded median septum; anterior epigynal margin indistinct, broadly domed, with copulatory openings at its ends; lateral epigynal margins strongly arched toward median septum (Figs. 182). Copulatory tubes long, broadening posteriorly, with more slender loop posteriorly; spermathecae small, ovoid, nearly touching (Fig. 183).

Comments. Males of *D. eremophilus* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: embolar projection straight and greatly prolonged, terminal apophysis with conical tip, and median apophysis small and with slender hooked spur. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, and anterior epigynal margin broadly dome-shaped.

Range. Michigan to New Brunswick, south to New York and Massachusetts.

Biology. Mature males have been taken in April and October, mature females in March and from July to October. The New Brunswick specimens were collected in a bog and one of the Michigan specimens in leaf litter.

Drassyllus insularis (Banks)

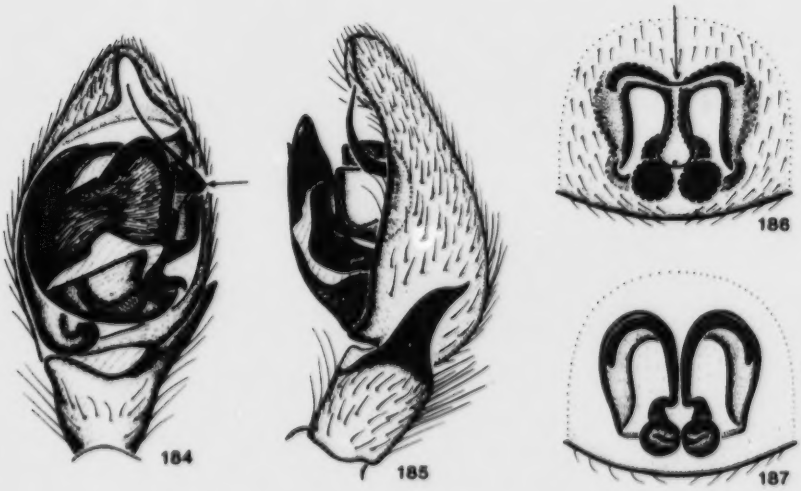
Figs. 184–187; Map 29

Callilepis insularis Banks, 1900:97.
Zelotes irritans Chamberlin, 1919*a*:6, fig. 6 (pl. 2).
Drassyllus apachus Chamberlin, 1922:168.
Drassyllus empiricus Chamberlin, 1924:628, fig. 66.
Drassyllus rationalis Chamberlin, 1924:629, fig. 67.
Drassyllus monteriensis Schenkel, 1950:38, figs. 6, 7.
Drassyllus insularis: Platnick and Shadab 1982:75, figs. 216–221.

Male. Total length 4.82 ± 1.28 mm; carapace 2.27 ± 0.32 mm long, 1.77 ± 0.21 mm wide; femur II 1.49 ± 0.23 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.10, PME 0.13, PLE 0.11, AME–AME 0.09, AME–ALE 0.02, PME–PME 0.04, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.32 long, 0.21 wide at front, 0.30 wide at back. Retrolateral

apophysis stout, abruptly narrowed at tip (Fig. 185); embolus long, slender, strongly elbowed; embolar projection somewhat prolonged retrolaterally beyond embolus; terminal apophysis large, with tip broadly conical; median apophysis rather large, angular, with hooked spur (Figs. 184, 185).

Female. Total length 5.23 ± 0.82 mm; carapace 2.09 ± 0.15 mm long, 1.57 ± 0.12 mm wide; femur II 1.40 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.11, PME 0.12, PLE 0.10, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.04, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.29 long, 0.20 wide at front, 0.28 wide at back. Epigynum with flask-shaped median septum having rounded posteriorly end; anterior epigynal margin broad, sinuous, arched posteriorly at middle; lateral epigynal margins somewhat curved, longer than median septum, and having copulatory openings situated at their ends (Fig. 186); copulatory tubes arising posteriorly, arched far anteriorly, extending posteriorly in parallel fashion along midline; spermathecae small, round, nearly touching (Fig. 187).

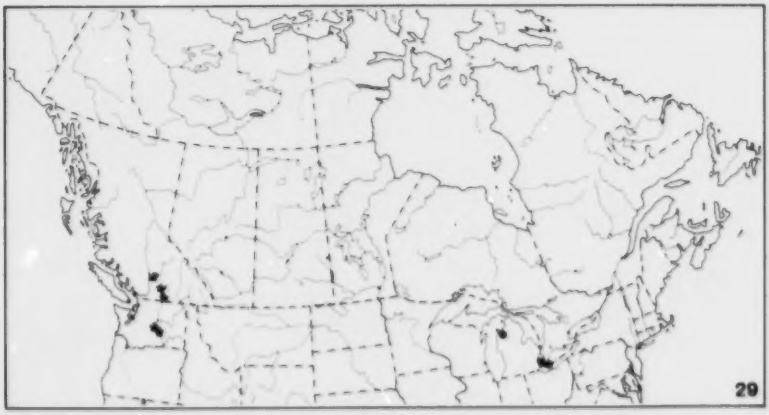


Figs. 184–187. Genitalia of *Drassyllus insularis*. 184, 185, palpus of male; 184, ventral view; 185, retrolateral view; 186, 187, epigynum and spermathecae; 186, ventral view; 187, dorsal view.

Comments. Males of *D. insularis* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: retrolateral apophysis stout and with abruptly tapered tip, embolus strongly elbowed, embolar projection somewhat prolonged retrolaterally beyond embolus, and terminal apophysis with tip cone-shaped. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, and anterior epigynal margin arched posteriorly.

Range. Southern British Columbia to Baja California and Sonora, Mexico.

Biology. Mature males and females have been taken year round, at least in the southern parts of the range. Individuals have been collected by pitfall traps in chaparral and in citrus litter; under logs and stones; in nests or burrows of wood rats, jumping spiders, and mygalomorph spiders; in buildings; and in stands of alfalfa, box elder, cottonwood, oak, poplar, and yucca.



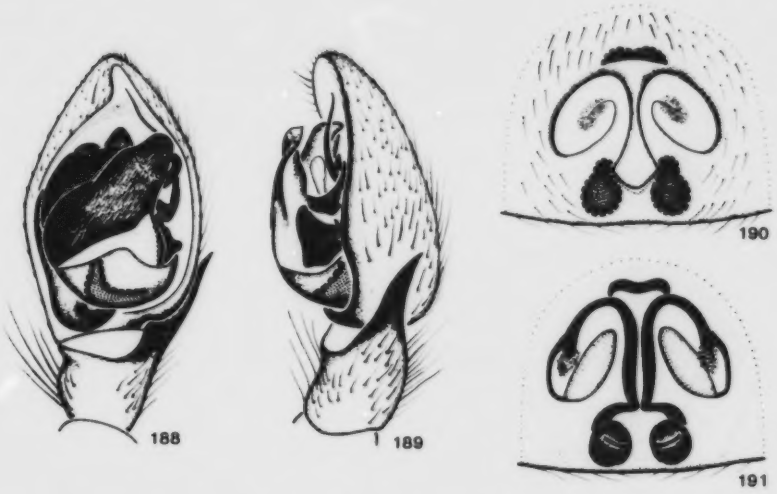
Map 29. Collection localities of *Drassyllus insularis* (★) and *D. creolus* (●).

Drassyllus saphes Chamberlin

Figs. 188–191; Map 30

Drassyllus saphes Chamberlin, 1936*a*:29, fig. 44; Platnick and Shadab 1982:84, figs. 222, 223, 248–251.

Male. Total length 3.90 ± 0.47 mm; carapace 1.70 ± 0.17 mm long, 1.30 ± 0.13 mm wide; femur II 1.06 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.06, PME 0.09, PLE 0.06, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.04, ALE–PLE 0.04; median ocular quadrangle 0.20 long, 0.16 wide at front, 0.20 wide at back. Retrolateral apophysis rather short, gradually tapered from base to tip (Fig. 189); embolus slender, curved or somewhat sinuous, not strongly elbowed; embolar projection not prolonged retrolaterally beyond embolus; terminal apophysis large, with broad conical tip; median apophysis rather small, with 2 hooked spurs (Figs. 188, 189).



Figs. 188–191. Genitalia of *Drassyllus saphes*. 188, 189, palpus of male; 188, ventral view; 189, retrolateral view; 190, 191, epigynum and spermathecae; 190, ventral view; 191, dorsal view.

Female. Total length 5.43 ± 1.18 mm; carapace 2.27 ± 0.59 mm long, 1.70 ± 0.42 mm wide; femur II 1.42 ± 0.38 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.10, PLE 0.07, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.19 long, 0.16 wide at front, 0.22 wide at back. Epigynum with median septum flask-shaped and posteriorly rounded; anterior epigynal margin narrow, crescent-shaped; lateral epigynal margins arched far laterally (Fig. 190); copulatory tubes long, slender, arched at anterior end, and extending posteriorly along midline in parallel fashion; spermathecae small, round, separated by approximately their radius (Fig. 191).

Comments. Males of *D. saphes* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: terminal apophysis with cone-shaped tip, embolus smoothly curved, and tibial apophysis gradually tapered. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, and anterior epigynal margin short and crescent-shaped.

Range. British Columbia and Montana to Baja California (Norte), Mexico.

Biology. Mature males have been taken from March to August, mature females from May to December. Individuals have been taken by vacuum collectors in grassland, cottonfields, alfalfa, and rangeland; in debris under citrus trees; and on dunes.

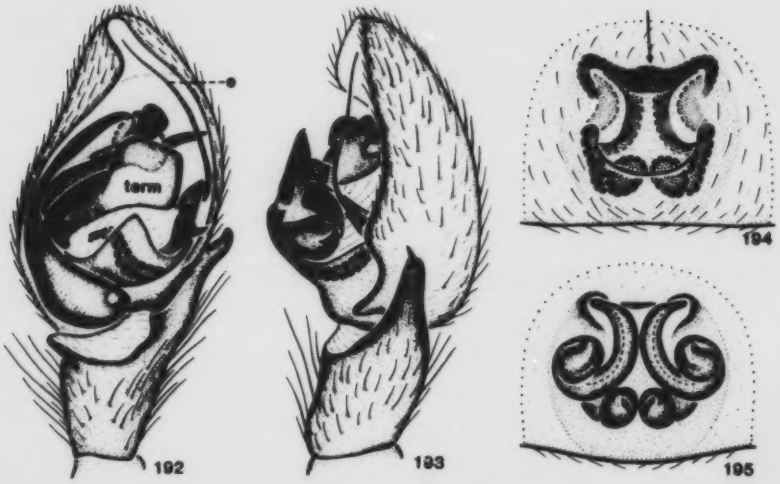
Map 30. Collection localities of *Drassyllus saphes*.

Drassyllus rufulus (Banks)

Figs. 192–195; Map 31

Prosthesima rufula Banks, 1892:17, figs. 55, 55*a* (pl. 1).
Prosthesima immaculata Banks, 1892:18, figs. 58, 58*a* (pl 1).
Drassyllus rufulus: Chamberlin, 1922:167; Kaston 1948:358, figs. 1203–1205 (pl. 62); Platnick and Shadab 1982:44, figs. 122–127.

Male. Total length 4.66 ± 0.47 mm; carapace 2.08 ± 0.23 mm long, 1.70 ± 0.20 mm wide; femur II 1.53 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.10, PME 0.14, PLE 0.11, AME–AME 0.05, AME–ALE 0.03, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.32 long, 0.23 wide at front, 0.30 wide at back. Retrolateral apophysis rather short, tapered, constricted to sharp point at tip (Fig. 193); embolus long, fine, somewhat curved, with distal part visible from level of median apophysis in ventral view; embolar projection prolonged retrolaterally as far as embolus; terminal apophysis with large rectangular tip that is truncate along distal margin; median apophysis small, curved, with small pointed spur (Figs. 192, 193).



Figs. 192–195. Genitalia of *Drassyllus rufulus*. 192, 193, palpus of male; 192, ventral view; 193, retrolateral view; 194, 195, epigynum and spermathecae; 194, ventral view; 195, dorsal view. *e*, embolus; *term*, terminal apophysis.

Female. Total length 5.84 ± 1.11 mm; carapace 2.22 ± 0.26 mm long, 1.78 ± 0.21 mm wide; femur II 1.64 ± 0.22 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.09, PME 0.14, PLE 0.11, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.30 long, 0.25 wide at front, 0.30 wide at back. Epigynum with median septum nearly as wide anteriorly as posteriorly and rounded at posterior end; anterior epigynal margin thick, dark, strongly arched posteriorly; lateral epigynal margins short, curved, situated at sides of median septum, and having copulatory openings situated at their anterior ends (Fig. 194); copulatory tubes rather long, stout, arched toward midline, and then forming tight coil; spermathecae small, ovoid, touching (Fig. 195).

Comments. Males of *D. rufulus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: embolus long and terminal apophysis truncate. Females are distinguished by the following combination of characters: median septum with anterior piece broad and with posterior piece rounded, and anterior epigynal margin strongly arched posteriorly. This spider is unusually variable in size.

Range. Wisconsin to southern Ontario and New Hampshire, south to Colorado, Texas, and North Carolina.

Biology. Mature males have been taken in September and October, mature females from September to November. The spider, therefore, appears to be autumn-maturing. Individuals were collected under stones in mixed deciduous-conifer forests and in grassy fields or abandoned pastures. Kaston (1948) observed an egg sac, which had been collected under a stone with a female, in September or October.

Drassyllus novus (Banks)

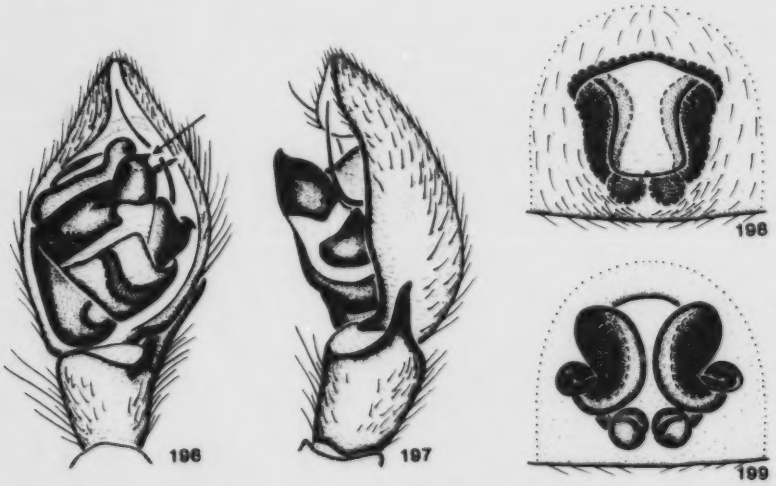
Figs. 196–199; Map 32

Prosthesima nova Banks, 1895*a*:78.

Drassyllus virginianus Chamberlin, 1922:168; Kaston 1948:360, figs. 1225–1227 (pl. 64).

Drassyllus novus: Platnick and Shadab 1982:43, figs. 112, 113, 118–121.

Male. Total length 5.25 ± 0.29 mm; carapace 2.37 ± 0.12 mm long, 1.88 ± 0.09 mm wide; femur II 1.54 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.09, PME 0.11, PLE 0.09, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.28 long, 0.23 wide at front, 0.24 wide at back. Palpal tibia with short straight pointed retrolateral apophysis (Fig. 197); embolus long, slender, with distal part visible from level of median apophysis in ventral view; embolar base with rounded prominence; embolar projection prolonged somewhat beyond embolus; terminal apophysis large, with small point at tip; median apophysis small, with hooked spur (Figs. 196, 197).



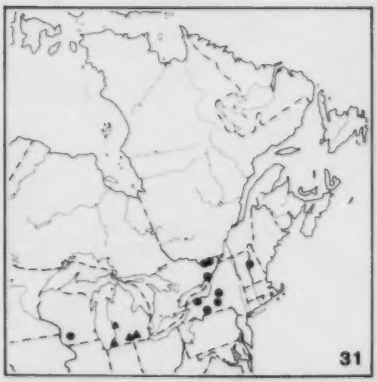
Figs. 196–199. Genitalia of *Drassyllus novus*. 196, 197, palpus of male; 196, ventral view; 197, retrolateral view; 198, 199, epigynum and spermathecae; 198, ventral view; 199, dorsal view.

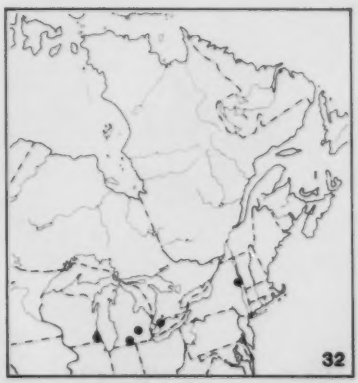
Female. Total length 7.08 ± 0.55 mm; carapace 2.75 ± 0.14 mm long, 2.13 ± 0.12 mm wide; femur II 1.88 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.11, PME 0.13, PLE 0.10, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.03, PME–PLE 0.06, ALE–PLE 0.07; median ocular quadrangle 0.31 long, 0.23 wide at front, 0.29 wide at back. Epigynum with median septum approximately rectangular and flattened at posterior end; anterior epigynal margin broadly conical; lateral epigynal margins situated along sides of median septum (Fig. 198); copulatory tubes stout, arched toward midline, and having small coil posteriorly; spermathecae small, round, nearly touching (Fig. 199).

Comments. Males of *D. novus* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: embolus long and terminal apophysis with small point at tip. Females are distinguished by the following combination of characters: median septum approximately rectangular and posteriorly flattened, and copulatory tubes arched mesally.

Range. Wisconsin to southernmost Ontario and New York, south to Arkansas and northern Georgia.

Biology. Mature males have been taken from April to June and in November, mature females from May to September. Individuals have been collected under stones and in pitfall traps in litter found in pine and oak–hickory forests.





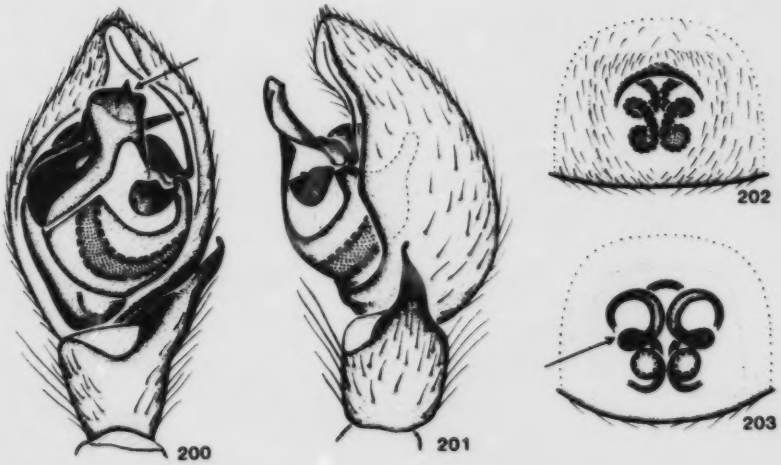
Maps 31, 32. Collection localities of *Drassyllus* spp. 31, *D. rufulus* (•) and *D. aprilinus* (▲); 32, *D. novus*.

Drassyllus aprilinus (Banks)

Figs. 200–203; Map 31

Zelotes aprilinus Banks, 1904*b*:110; fig. 7.
Drassyllus aprilinus: Chamberlin 1922:170; Kaston 1948:360, figs. 1217-1219 (pl. 63); Platnick and Shadab 1982:48, figs. 128–133.
Drassyllus ostegae Chamberlin, 1936*a*:29, figs. 42, 43.

Male. Total length 3.86 ± 0.22 mm; carapace 1.75 ± 0.10 mm long, 1.36 ± 0.09 mm wide; femur II 1.09 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.09, PLE 0.07, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.01, PME–PLE 0.03, ALE–PLE 0.04; median ocular quadrangle 0.22 long, 0.14 wide at front, 0.20 wide at back. Retrolateral apophysis short, tapered, with tip flattened (Fig. 201); embolus long, slender, somewhat sinuous, with distal part visible from level of median apophysis in ventral view; embolar base with rounded prominence; embolar projection finger-like, prolonged retrolaterally as far as embolus; terminal apophysis truncate, with small distally directed point; median apophysis small, with minute spur (Figs. 200, 201).



Figs. 200–203. Genitalia of *Drassyllus aprilinus*. 200, 201, palpus of male; 200, ventral view; 201, retrolateral view; 202, 203, epigynum and spermathecae; 202, ventral view; 203, dorsal view.

Female. Total length 4.50 ± 0.51 mm; carapace 1.87 ± 0.17 mm long, 1.40 ± 0.08 mm wide; femur II 1.15 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.11, PLE 0.08, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.24 long, 0.20 wide at front, 0.23 wide at back. Epigynum with median septum not developed; anterior epigynal margin arched anteriorly; lateral epigynal margins not developed (Fig. 202); copulatory tubes slender, coiled; spermathecae small, round, nearly touching (Fig. 203).

Comments. Males of *D. aprilinus* are distinguished from those of the other Canadian species of *Drassyllus* by the following combination of characters: embolus long and terminal apophysis with moderately large point. Females are distinguished by the following combination of characters: median septum undeveloped, anterior epigynal margin arched anteriorly, and copulatory tubes slender and coiled.

Range. Michigan to New Hampshire, south to Florida, Texas, and San Luis Potosi, Mexico.

Biology. Mature males and females have been taken in every month of the year, but were most frequently collected from April to October in the northern parts of the range. Specimens have been found in leaf litter; under stones and boards; on beaches; in pecan and citrus groves; and in oak-hickory, pine, and beech–magnolia forests, at elevations of up to 1050 m.

Drassyllus frigidus (Banks)

Figs. 204–207; Map 33

Prosthesima frigida Banks, 1892:17, figs. 56, 56*a* (pl. 1).
Drassyllus frigidus: Chamberlin 1922:168; Kaston 1948:359, figs. 1211-1213 (pl. 63); Platnick and Shadab 1982:52, figs. 140–145.
Drassyllus amissus Chamberlin, 1936*a*:22, figs. 28, 29.

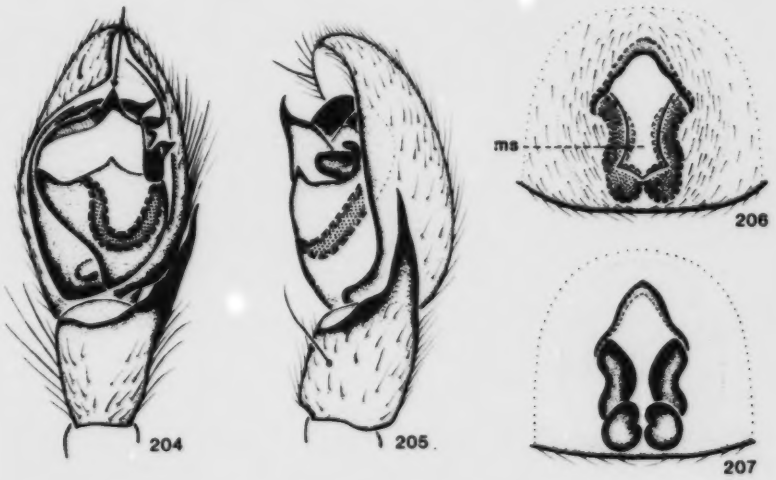
Male. Total length 3.69 ± 0.28 mm; carapace 1.67 ± 0.08 mm long, 1.26 ± 0.06 mm wide; femur II 1.10 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.11, PLE 0.08, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.24 long, 0.18 wide at front, 0.23 wide at back. Retrolateral apophysis rather long, evenly tapered to fine point, nearly straight (Fig. 205); embolus rather short, slender, angled; embolar projection

short, finger-like; terminal apophysis with short point directed distally; median apophysis small, curved, with small spur (Figs. 204, 205).

Female. Total length 4.46 ± 0.34 mm; carapace 1.79 ± 0.09 mm long, 1.35 ± 0.08 mm wide; femur II 1.20 ± 0.04 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.12, PLE 0.08, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.04, ALE–PLE 0.04; median ocular quadrangle 0.25 long, 0.21 wide at front, 0.26 wide at back. Epigynum with flask-shaped median septum having an angled posterior end; anterior epigynal margin conical; lateral epigynal margins moderately long, somewhat sinuous, strongly diverging posteriorly (Fig. 206); copulatory tubes broad, somewhat arched toward midline; spermathecae rather small, ovoid, nearly touching (Fig. 207).

Comments. Males of *D. frigidus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: embolus short and terminal apophysis with short, distally directed point. Females are distinguished by the flask-shaped posteriorly pointed median septum.

Range. Michigan to New York and Massachusetts, south to Arizona, Arkansas, and northern Florida.



Figs. 204–207. Genitalia of *Drassyllus frigidus*. 204, 205, palpus of male; 204, ventral view; 205, retrolateral view; 206, 207, epigynum and spermathecae; 206, ventral view; 207, dorsal view. *ms*, median septum.

Biology. Mature males and females have been taken in all months of the year. Specimens have been collected by pitfall traps in leaf litter, fields, and quarries; and under stones, logs, and boards.

Drassyllus creolus Chamberlin & Gertsch

Figs. 208–211; Map 29

Drassyllus creolus Chamberlin and Gertsch, 1940:13, figs. 26, 27; Kaston 1948:360, figs. 1214–1216 (pl. 63); Platnick and Shadab 1982:56, figs. 152, 153, 158–161.

Male. Total length 4.65 ± 0.48 mm; carapace 2.03 ± 0.19 mm long, 1.60 ± 0.14 mm wide; femur II 1.46 ± 0.15 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.09, PME 0.14, PLE 0.09, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.04, ALE–PLE 0.03; median ocular quadrangle 0.24 long, 0.23 wide at front, 0.30 wide at back. Palpal tibia with short tapered pointed retrolateral apophysis (Fig. 209); embolus rather short (visible only from level distal to median apophysis in ventral view), fine, elbowed; embolar base oblique, rather slender, with minute spur on distal margin; terminal apophysis long, oblique, pointed; median apophysis rather large, strongly folded upon itself (Figs. 208, 209).

Figs. 208–211. Genitalia of *Drassyllus creolus*. 208, 209, palpus of male; 208, ventral view; 209, retrolateral view; 210, 211, epigynum and spermathecae; 210, ventral view; 211, dorsal view.

Female. Total length 5.42 ± 0.35 mm; carapace 2.17 ± 0.16 mm long, 1.71 ± 0.11 mm wide; femur II 1.59 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.09, PME 0.14, PLE 0.10, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.01, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.30 long, 0.23 wide at front, 0.30 wide at back. Epigynum with broad rounded median septum; anterior epigynal margin approximately transverse; lateral epigynal margins moderately long, somewhat sinuous, diverging posteriorly (Fig. 210); copulatory tubes thick, somewhat sinuous, longitudinal, with small lobe anteriorly on mesal margin; spermathecae small, ovoid, somewhat separated (Fig. 211).

Comments. Males of *D. creolus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: embolus short, terminal apophysis with long point, and median apophysis strongly folded. Females are distinguished by the following combination of characters: median septum broad and rounded, anterior epigynal margin approximately transverse, and copulatory tubes thick and somewhat sinuous.

Range. Michigan and southern Ontario to Massachusetts, south to eastern Texas and Florida.

Biology. Mature males have been taken from late February to June, mature females from March to August. Individuals have been collected in pitfall traps and Berlese funnels in pecan groves, cotton fields, prairies, and fields; in pine, pin oak, and oak–hickory forests; and under boards and debris on the soil surface.

Drassyllus dromeus Chamberlin

Figs. 212–215; Map 33

Drassyllus dromeus Chamberlin, 1922:169; Platnick and Shadab 1982:62, figs. 178–183.
Drassyllus lutzi Chamberlin, 1936*a*:25, fig. 39.
Drassyllus devexus Chamberlin, 1936*b*:13, fig. 7.

Male. Total length 4.37 ± 0.32 mm; carapace 2.04 ± 0.10 mm long, 1.58 ± 0.04 mm wide; femur II 1.36 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.09, PME 0.08, PLE 0.09, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.05, ALE–PLE 0.04; median ocular quadrangle 0.27 long, 0.22 wide at front, 0.18 wide at back. Palpal tibia with moderately long tapered pointed retrolateral apophysis (Fig. 213); embolus short (distal part visible from point distal to median apophysis), slender, elbowed; embolar projection long, pointed; terminal apophysis with long distally directed point having minute excavation; median apophysis rather large, not folded upon itself, with pointed spur (Figs. 212, 213).

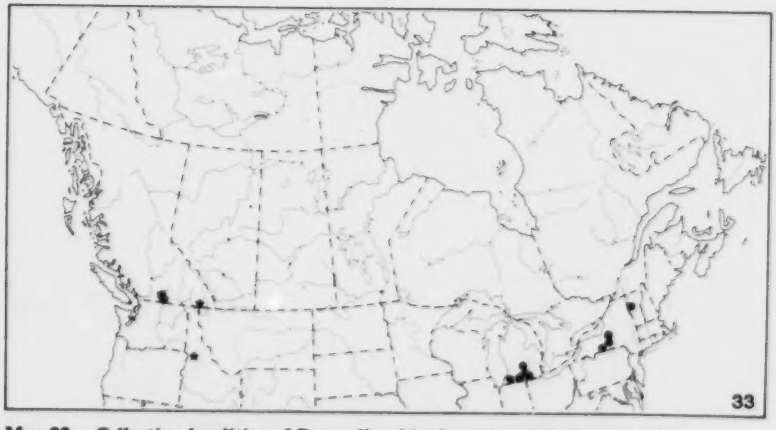
Female. Total length 5.31 ± 1.04 mm; carapace 2.19 ± 0.24 mm long, 1.68 ± 0.14 mm wide; femur II 1.48 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.11, PME 0.11, PLE 0.08, AME–AME 0.09, AME–ALE 0.01, PME–PME 0.03, PME–PLE 0.04, ALE–PLE 0.05; median ocular quadrangle 0.27 long, 0.25 wide at front, 0.24 wide at back. Epigynum with median septum flask-shaped and posteriorly rounded; anterior epigynal margin narrowly domed; lateral epigynal margins long, straight, parallel, interrupted at anterior ends by copulatory openings (Fig. 214); copulatory tubes thick, straight (except at posterior extremity), converging posteriorly; spermathecae rather large, round, nearly touching (Fig. 215).

Comments. Males of *D. dromeus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: embolus short, terminal apophysis with long distally directed and terminally excavated point, and median apophysis not folded upon itself. Females are distinguished by the following combination of characters: median septum flask-shaped and posteriorly rounded, anterior epigynal margin narrowly dome-shaped, lateral epigynal margins interrupted anteriorly by copulatory openings, and copulatory tubes converging posteriorly.

Range. British Columbia to Massachusetts, south to Arizona, Texas, and Georgia.

Biology. Mature males have been taken from March to November, mature females from March to December. Collections have been made by pitfall traps or by searches in tall grass; in litter in oak, pinyon pine, juniper, and nolina stands; and under stones or in houses.

Figs. 212–215. Genitalia of *Drassyllus dromeus*. 212, 213, palpus of male; 212, ventral view; 213, retrolateral view; 214, 215, epigynum and spermathecae; 214, ventral view; 215, dorsal view. co, copulatory opening.



Map 33. Collection localities of *Drassyllus frigidus* (●) and *D. dromeus* (★).

Genus *Urozelotes* Mello-Leitão

Spiders of the genus *Urozelotes* are medium-sized, tan or pale orange. The single Canadian species, *U. rusticus* (L. Koch), is regarded as synanthropic and virtually cosmopolitan; it is found mainly in buildings but also in such disturbed habitats as gardens, pastures, and citrus groves, as well as in oak forests and caves. Populations have been recorded in many countries, particularly where warm climates prevail.

Description. Total length 4.0–7.6 mm. Carapace ovoid, widest at level of coxae II and III, low anteriorly, truncated anteriorly and posteriorly, abruptly narrowed at level of palpi, light orange but somewhat darker anteriorly, with numerous long thin dark setae along midline and outlining posterior declivity. From front, both rows of eyes procurved; from above, anterior row of eyes somewhat recurved and posterior row somewhat procurved; anterior median eyes smallest, circular, dark; posterior median eyes usually largest, irregularly rectangular, light; lateral eyes ovoid, light; anterior median eyes separated from each other by approximately their width and from anterior lateral eyes by somewhat less; posterior median eyes virtually touching, separated from posterior lateral eyes by half their width or less; median ocular quadrangle wider than long, wider at back than at front. Chelicerae usually with 3 promarginal teeth and 1 retromarginal tooth. Palp-coxal lobes long, rectangular, narrowed anteriorly. Sternum with thickened margins and with long scattered setae. Leg formula 4123; segments uniformly light orange; distitarsi and anterior basitarsi with sparse scopulae; claw tufts and trochanteral notches lacking; preening combs present on basitarsi III and IV. Abdomen pale tan, in males with orange scutum anteriorly, covered with short setae and scattered long bristles. Male palpus (Figs. 216, 217) with retrolateral tibial apophysis short, stout, and pointed and with embolus partly concealed in ventral view by terminal apophysis; terminal apophysis thick and angled or slender and sinuous; median apophysis sinuous and flattened. Epigynum (Figs. 218, 219) lacking hood and having teardrop-shaped median septum; spermathecae large, rounded, visible through integument, and giving off long ducts that terminate anteriorly in small bulbs.

Comments. Members of the genus *Urozelotes* are distinguished from those of other Canadian genera of Gnaphosidae by the following combination of characters: preening comb present, terminal apophysis pointed and either angled or sinuous and lying upon and largely concealing embolus, epigynum without hood but with teardrop-shaped median septum, and spermathecae with long anterior ducts having bulbous tips.

The genus *Urozelotes* includes only two species, the cosmopolitan *U. rusticus* and a species with no locality data, *U. mysticus* Platnick and Murphy (Platnick and Murphy 1984). As previously mentioned, only the former is represented in Canada.

Urozelotes rusticus (L. Koch)

Figs. 216–219; Map 34

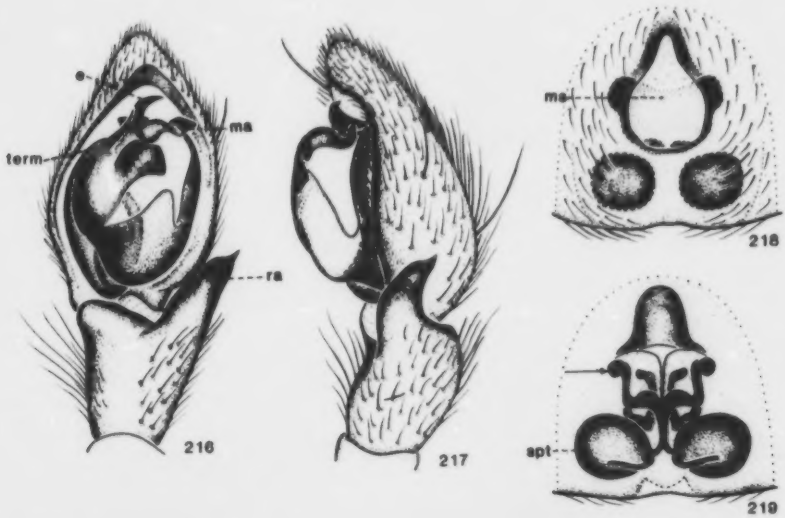
Prosthesima rustica L. Koch, 1872:309.
Drassus razoumowskyi Pavesi, 1873:123, fig. 3.
Drassus cerdo Thorell, 1875*b*:97.
Prosthesima pallida Keyserling, 1877:602, fig. 22 (pl. 14). Name preoccupied in genus *Prosthesima*.
Prosthesima larifuga Simon, 1878:90, fig. 22 (pl. 14).
Drassus agelastus Keyserling, 1891:35, fig. 14.
Prosthesima blanda Banks, 1892:18, figs. 57, 57*a*.
Prosthesima minima Banks, 1892:19, fig. 69.
Prosthesima completa Banks, 1898:219, fig. 22 (pl. 13).
Prosthesima lutea F.O. Pickard-Cambridge, 1899:57, figs. 16, 16*a* (pl. 4).
Melanophora pacifica Simon, 1899:412.
Melanophora porteri Simon, 1904:89.
Zelotes femoralis Banks, 1904*a*:336, fig. 1 (pl. 38).
Melanophora rustica orientalis Simon, 1908:77.
Drassyllus liopus Chamberlin, 1922:170.
Camillina amnicola Tucker, 1923:336, figs. 56A, B.
Haplodrassus magister Chamberlin, 1933:6, figs. 11, 12.
Drassyllus abdalbus Chamberlin, 1936*b*:15, figs. 31, 32.
Urozelotes cardiogynus Mello-Leitão, 1938:111, fig. 30.
Zelotes scutatus Mello-Leitão, 1939:529, figs. 14, 15. Name preoccupied in genus *Zelotes*.
Drassyllus femoralis: Kaston 1948:360, figs. 1220–1222 (pl. 63).
Zelotes keyserlingi Roewer, 1951:444. New name for *Prosthesima pallida* Keyserling.
Zelotes paulistus Roewer, 1951:444. New name for *Zelotes scutatus* Mello-Leitão.
Drassodes malodes Tikader, 1962:572, figs. 2*a*–2*c*.
Camillina gigas Schmidt, 1973:362, fig. 3.
Urozelotes rusticus: Platnick and Murphy 1984:24, figs. 55–58.
Zelotes rusticus: Grimm 1985:221, figs. 217*b*, 218*b*, 244*a*, 244*b*, 272, 273.

Male. Total length 6.50 ± 0.77 mm; carapace 3.15 ± 0.33 mm long, 2.33 ± 0.27 mm wide; femur II 2.12 ± 0.19 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.13, PME 0.15, PLE 0.11, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.02, PME–PLE 0.06, ALE–PLE 0.04; median ocular quadrangle 0.27 long, 0.24 wide at front, 0.32 wide at back. Palpus with retrolateral tibial apophysis rather short, stout, pointed at tip, and somewhat curved dorsally (Fig. 217); terminal apophysis short, slender; median apophysis flattened and sinuous, situated distally on genital bulb (Fig. 216).

Female. Total length 6.66 ± 0.72 mm; carapace 3.04 ± 0.26 mm long, 2.23 ± 0.20 mm wide; femur II 2.01 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.14, PME 0.18, PLE 0.12, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.02, PME–PLE 0.09, ALE–PLE 0.07; median ocular quadrangle 0.34 long, 0.29 wide at front, 0.38 wide at back. Epigynum with large teardrop-shaped median septum that is situated distinctly anterior to genital groove (Fig. 218); spermathecae large, rounded, visible through integument posterior to median septum, and having slender anterior ducts with small bulbous tips (Fig. 219).

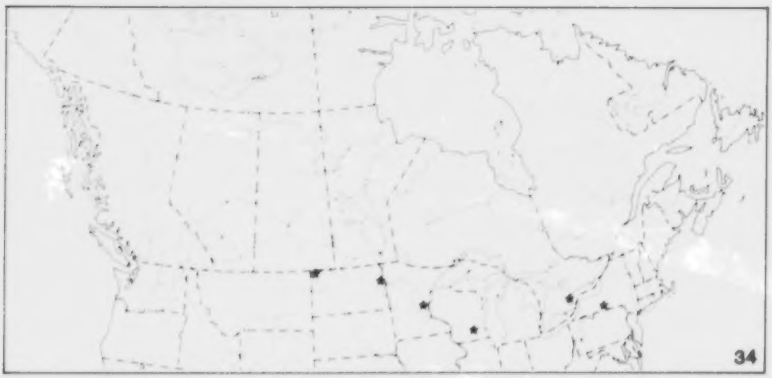
Comments. Individuals of *U. rusticus* are distinguished by the characters given for the genus *Urozelotes*. Platnick and Shadab (1983) noted that because of its synanthropic way of life, this species has been transported to many parts of the world and hence has accumulated what is probably the longest list of synonyms for any gnaphosid species.

Range. Oregon, North Dakota, Minnesota, southern Ontario, and New York, south to Mexico; Central and South America; Europe; Asia; Africa.



Figs. 216–219. Genitalia of *Urozelotes rusticus*. 216, 217, palpus of male; 216, ventral view; 217, retrolateral view; 218, 219, epigynum and spermathecae; 218, ventral view; 219, dorsal view. *e*, embolus; *ma*, median apophysis; *ms*, median septum; *ra*, retrolateral tibial apophysis; *spt*, spermatheca; *term*, terminal apophysis.

Biology. Specimens have been most often taken in buildings but are also known in gardens, citrus groves, and similarly disturbed habitats, as well as in oak forests and caves.



Map 34. Collection localities of *Urozelotes rusticus*.

Genus *Drassodes* Westring

Spiders of the genus *Drassodes* are of medium size and have brownish, grayish, or reddish coloring. They have a cryptic way of life. They are most often collected by pitfall traps or by the turning of stones in alpine grasslands, pine forests, or sagebrush-covered slopes. Identification is complicated by high individual variation in and relatively simple structure of the external genitalia. The length and degree of curvature of the embolus, the number of dorsodistal macrosetae on the palpal femur, and the shape of the median septum and spermathecae are the most useful characters for species recognition.

Description. Total length 3.8–11.6 mm. Carapace approximately rectangular in dorsal view, widest between coxae II and III, little narrowed toward front, light brown or reddish, covered with recumbent black or scale-like white setae. From front, both rows of eyes procurved; anterior median eyes round; posterior median eyes irregularly square; lateral eyes ovoid; posterior median eyes usually largest; anterior median eyes separated by more than their maximum width and from anterior lateral eyes by less than their maximum width; posterior median eyes separated by more or less their width and from posterior lateral eyes by more than their width; lateral eyes separated by more than their width; median ocular quadrangle longer than wide, usually wider at back than at front. Chelicerae with 3 or 4 promarginal teeth and 1–6 retromarginal denticles.

Leg formula 4123; all leg trochanters distinctly notched (Fig. 10); basitarsi I and II and all distitarsi scopulate; typical macrosetation: femora I, II d1-1-0, p0-0-1; III, IV d1-1-1, p0-1-1, r0-1-1; tibiae I, II v0-1-0; III d1-0-0, p1-1-1, v1-1-2, r0-1-1; IV d1-1-0, p1-1-1, v1-2-2, r1-1-1; basitarsi I, II v1-0-0; III p1-2-2, v2-2-2, r1-1-2; IV p1-2-2, v2-2-2, r2-2-2. Abdomen brownish gray, long, slender, lacking dorsal scutum, and having a cluster of dark erect setae at anterior end. Male palpal tibia as long as cymbium or nearly so, slender, and usually having short pointed toothed retrolateral apophysis (Figs. 225, 233); embolus usually short, curved, prolateral in position (Figs. 220, 224, 228); conductor soft, pale, arising at base of embolus and lying parallel to it; median apophysis small, hooked, situated distally near midline of genital bulb (Figs. 220, 232). Epigynum usually with large flat rounded median septum, with larger shallow depression (Figs. 222, 226, 230), and rarely with septum and depression not developed (Fig. 234); spermathecae each in two parts that are connected by slender duct (Figs. 223, 227, 231).

Comments. Representatives of the genus *Drassodes* are distinguished from representatives of the other Canadian gnaphosid genera by the distinct ventral notch at the tip of each leg trochanter. Additional diagnostic characters are the elongated slender palpal tibia, short retrolateral apophysis, small hooked median apophysis, slender embolus, and subdivided spermathecae. Males of *D. gosiutus* Chamberlin resemble those of some species of *Herpyllus* in palpal structure but possess the other characters given above. Subdivided spermathecae occur in females of *Litopyllus*, but the latter lack the other diagnostic characters given for *Drassodes*.

The genus *Drassodes* comprises 100 or more world species, of which seven occur in North America (Platnick and Shadab 1976a). Five species occur or are thought to occur in Canada.

Key to species of *Drassodes*

1. Male 2

   Female 6

2(1). Palpal tibia with retrolateral apophysis well developed (Figs. 225, 229, 233); embolus straight or smoothly curved (Fig. 224, 228, 232) 3

   Palpal tibia with retrolateral apophysis represented by flattened lobe or undeveloped (Fig. 221); embolus sinuous (Fig. 220) ... . ***gosiutus* Chamberlin** (p. 144)

3(2). Embolus long, arising near base of genital bulb and extending far distally (Fig. 224) ..... ***mirus* Platnick & Shadab** (p. 146)

Embolus shorter, arising on distal half of genital bulb (Figs. 228, 232, 236) 4

4(3). Embolus nearly straight (Fig. 228); retrolateral tibial apophysis slender distally (Fig. 228) ..... ***saccatus*** **(Emerton)** (p. 148)

Embolus distinctly curved (Figs. 232, 236); retrolateral tibial apophysis stouter distally (Figs. 232, 236) 5

5(4). Median apophysis minute, situated near distal margin of genital bulb (Fig. 232); palpal femur with 3 dorsodistal macrosetae ..... ***neglectus*** **(Keyserling)** (p. 150)

Median apophysis larger, situated farther from distal margin of genital bulb (Fig. 236); palpal femur with 5 or more dorsodistal macrosetae ..... ***auriculoides*** **Barrows** (p. 153)

6(1). Median septum broad, gradually narrowed anteriorly (Fig. 226); spermathecae coiled (Fig. 227) ..... ***mirus*** **Platnick & Shadab** (p. 146)

Median septum more slender, abruptly narrowed anteriorly or not developed (Figs. 230, 234, 238); spermathecae not coiled (Figs 231, 235, 239) 7

7(6). Chelicerae with 1 retromarginal denticle ..... ***gosiutus*** **Chamberlin** (p. 144)

Chelicerae with 2 or more retromarginal denticles 8

8(7). Epigynum without median septum (Fig. 234) ..... ***neglectus*** **(Keyserling)** (p. 150)

Epigynum with distinct median septum (Figs. 230, 238) 9

9(8). Median septum approximately twice as broad as long (Figs. 230) ..... ***saccatus*** **(Emerton)** (p. 148)

Median septum approximately as broad as long (Fig. 238) ..... ***auriculoides*** **Barrows** (p. 153)

Clé des espèces de *Drassodes*

1. **Mâle** 2

Femelle 6

2(1). Tibia palpal pourvu d'une apophyse rétrolatérale bien développée (fig. 225, 229, 233); embolus droit ou faiblement courbé (fig. 224, 228, 232) 3

Tibia palpal pourvu d'une apophyse rétrolatérale représentée par un lobe plutôt plat, ou non développée (fig. 221); embolus sinueux (fig. 220) ..... ***gosiutus* Chamberlin** (p. 144)

3(2). Embolus long, s'élevant près de la base du bulbe génital et s'étendant loin distalement (fig. 224) ..... ***mirus* Platnick & Shadab** (p. 146)

Embolus plus court, s'élevant sur la moitié distale du bulbe génital (fig. 228, 232, 236) 4

4(3). Embolus presque droit (fig. 228); apophyse tibiale rétrolatérale effilée distalement (fig. 228) ..... ***saccatus* (Emerton)** (p. 148)

Embolus nettement courbé (fig. 232, 236); apophyse tibiale rétrolatérale plus épaisse distalement (fig. 232, 236) 5

5(4). Apophyse médiane minuscule, située près de la marge distale du bulbe génital (fig. 232); fémur palpal pourvu de trois macrosoies dorsodistales ..... ***neglectus* (Keyserling)** (p. 150)

Apophyse médiane plus grande, située plus loin de la marge distale du bulbe génital (fig. 236); fémur palpal pourvu de cinq macrosoies dorsodistales ou plus ..... ***auriculoides* Barrows** (p. 153)

6(1). Septum médian large, rétrécissant graduellement antérieurement (fig. 226); spermathèques enroulées (fig. 227) ..... ***mirus* Platnick & Shadab** (p. 146)

Septum médian plus effilé, rétrécissant brusquement antérieurement ou non développé (fig. 230, 234, 238); spermathèques non enroulées (fig. 231, 235, 239) 7

7(6). Chélicères munis d'un denticule rétromarginal ..... ***gosiutus* Chamberlin** (p. 144)

Chélicères munis de deux denticules rétromarginaux ou plus 8

8(7). Épigyne dépourvue de septum médian (fig. 234) ..... ***neglectus* (Keyserling)** (p. 150)

Épigyne pourvue d'un septum médian distinct (fig. 230, 238) 9

9(8). Septum médian environ deux fois plus large que long (fig. 230) ..... ***saccatus* (Emerton)** (p. 148)

Septum médian environ aussi large que long (fig. 238) ..... ***auriculoides* Barrows** (p. 153)

Drassodes gosiutus Chamberlin

Figs. 220–223; Map 35

Drassodes gosiutus Chamberlin, 1919*b*:245, fig. 3 (pl. 16); Platnick and Shadab 1976*a*:12, figs. 3, 29–36.

Geodrassus phanus Chamberlin, 1922:159; Kaston 1948:353, figs. 1193, 1194 (pl. 61), 1202 (pl. 62).

Geodrassus yavapainus Chamberlin, 1925:213.

Geodrassus gosiutus: Kaston 1948:353, figs. 1192 (pl. 61), 1199–1201 (pl. 62).

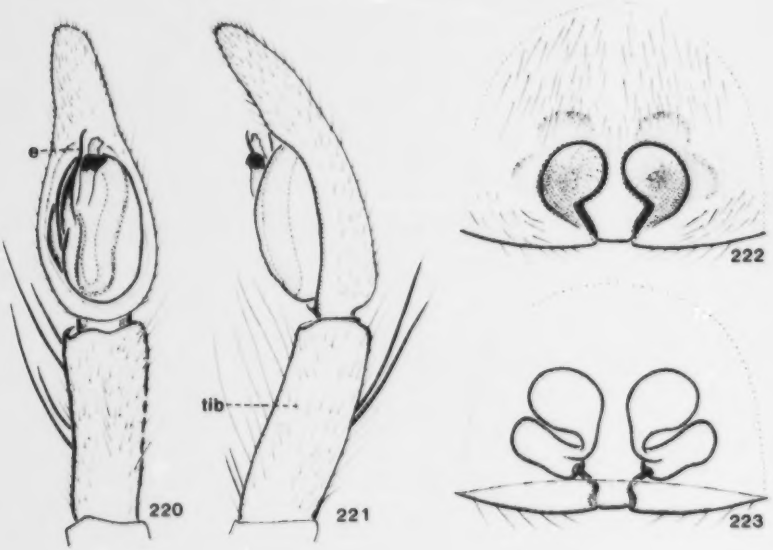
Male. Total length 7.91 ± 1.19 mm; carapace 3.75 ± 0.44 mm long, 2.67 ± 0.39 mm wide; femur II 2.85 ± 0.30 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.12, ALE 0.12, PME 0.16, PLE 0.11, AME–AME 0.16, AME–ALE 0.07, PME–PME 0.05, PME–PLE 0.29, ALE–PLE 0.16; median ocular quadrangle 0.42 long, 0.39 wide at front, 0.37 wide at back. Chelicerae with 1 retromarginal denticle; palpal femur with 3 dorsodistal macrosetae; palpal tibia with retrolateral apophysis represented by flattened lobe or not developed (Fig. 221); embolus slender and sinuous, arising at about midlength of genital bulb (Fig. 220); conductor small, pale, situated distally on genital bulb; median apophysis moderately long, rather slender (Fig. 220).

Female. Total length 8.71 ± 0.91 mm; carapace 3.84 ± 0.41 mm long, 2.71 ± 0.32 mm wide; femur II 2.68 ± 0.27 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.15, ALE 0.15, PME 0.18, PLE 0.13, AME–AME 0.15, AME–ALE 0.08, PME–PME 0.08, PME–PLE 0.31, ALE–PLE 0.16; median ocular quadrangle 0.54 long, 0.45 wide at front, 0.44 wide at back. Chelicerae and palpal femur as in male. Epigynum with median septum strongly narrowed anteriorly, wider and with margins angled in posterior half (Fig. 222); spermathecae not coiled, with two parts connected by slender duct (Fig. 223).

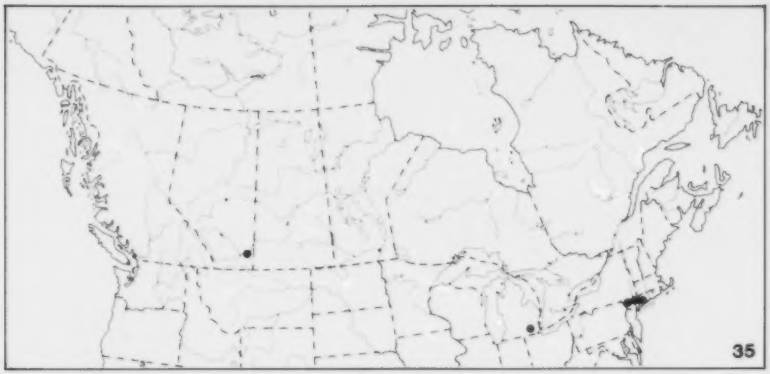
Comments. Individuals of *D. gosiutus* can be distinguished from those of the other Canadian species of *Drassodes* by the following combination of characters: cheliceral retromargin with only 1 denticle, palpal femur with 3 dorsodistal macrosetae, embolus moderately long and sinuous, retrolateral tibial apophysis represented at most by flattened lobe, and median septum narrowed anteriorly and broader and angular posteriorly.

Range. Southern Alberta to Connecticut, south to Arizona, Texas, and Mississippi.

Biology. Mature males have been taken from late June to late December, and mature females year round. Specimens have been collected by pitfall traps in grassland, under trash and leaf litter in oak forests, in houses, from the stomach of a toad, and in association with pinyon pine, juniper, nolina, yucca, allthorn, and mesquite. Kaston (1948) observed females guarding egg sacs that were white and lenticular.



Figs. 220–223. Genitalia of *Drassodes gosiutus*. 220, 221, palpus of male; 220, ventral view; 221, retrolateral view; 222, 223, epigynum and spermathecae; 222, ventral view; 223, dorsal view. *e*, embolus; *tib*, tibia.



Map 35. Collection localities of *Drassodes gosiutus*.

Drassodes mirus Platnick & Shadab

Figs. 224–227; Map 36

Drassodes mirus Platnick and Shadab, 1976*a*:10, figs. 21–28.

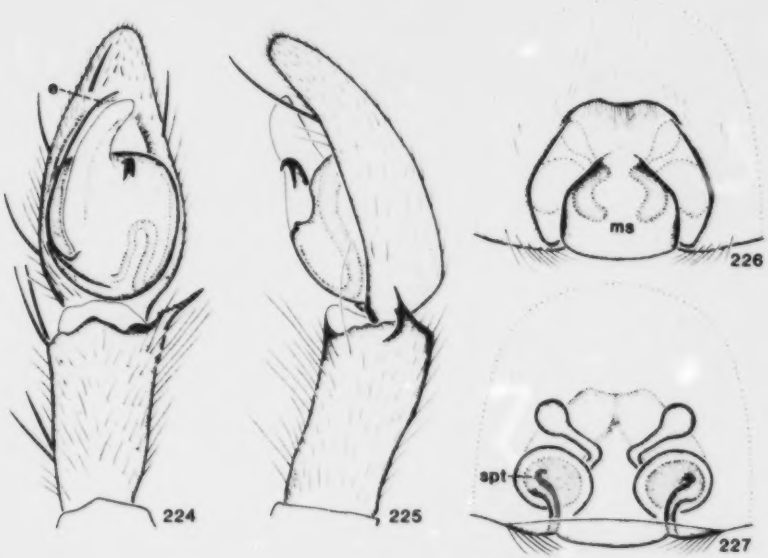
Male. Total length 6.37 ± 0.89 mm; carapace 2.99 ± 0.36 mm long, 2.14 ± 0.25 mm wide; femur II 2.15 ± 0.19 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.12, PME 0.13, PLE 0.12, AME–AME 0.17, AME–ALE 0.09, PME–PME 0.13, PME–PLE 0.30, ALE–PLE 0.20; median ocular quadrangle 0.44 long, 0.38 wide at front, 0.40 wide at back. Chelicerae with 2 retromarginal denticles. Palpal femur with 3 dorsodistal macrosetae; tibia with retrolateral apophysis rather slender, serrated along ventral margin (Figs. 224, 225); embolus long, slender, curved, arising at base of genital bulb and extending distally beyond bulb (Fig. 224); conductor long, broad, extending distally beyond genital bulb; median apophysis minute, hooked at tip (Fig. 224).

Female. Total length 6.95–8.86 mm; carapace 2.97–3.61 mm long, 2.16–2.50 mm wide; femur II 1.91–2.57 mm long (nine specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.11, PME 0.13, PLE 0.10, AME–AME 0.16, AME–ALE 0.08, PME–PME 0.09, PME–PLE 0.30, ALE–PLE 0.20; median ocular quadrangle 0.45 long, 0.37 wide at front, 0.35 wide at back. Chelicerae and palpal femur as in male. Epigynum with large shallow depression and with broad gradually narrowed median septum (Fig. 226); spermathecae coiled (Fig. 227).

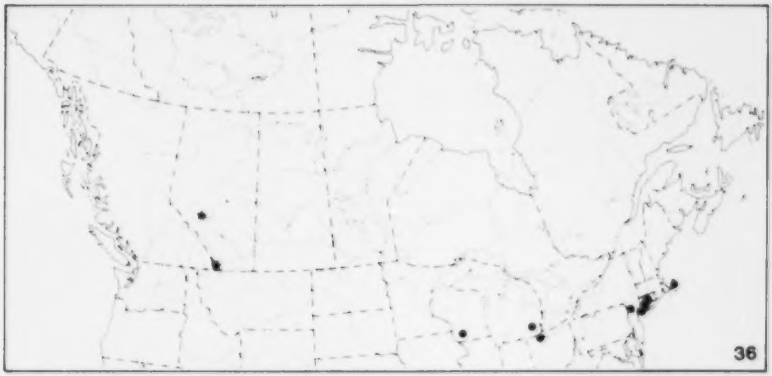
Comments. Specimens of *D. mirus* can be distinguished from those of the other Canadian species of *Drassodes* by the greatly elongated embolus of males and by the broad median septum and coiled spermathecae of females.

Range. Alberta and Colorado; USSR (Ovtsharenko and Marusik 1988).

Biology. Mature males and females have been taken in June and July. The main habitats are grasses, sedges, and alpine tundra. All of the known North American specimens were collected in the Rocky Mountains, those in Alberta at 1430 m or higher and those in Colorado at an elevation of 4000–4400 m.



Figs. 224–227. Genitalia of *Drassodes mirus*. 224, 225, palpus of male; 224, ventral view; 225, retrolateral view; 226, 227, epigynum and spermathecae; 226, ventral view; 227, dorsal view. *e*, embolus; *ms*, median septum; *spt*, spermatheca.



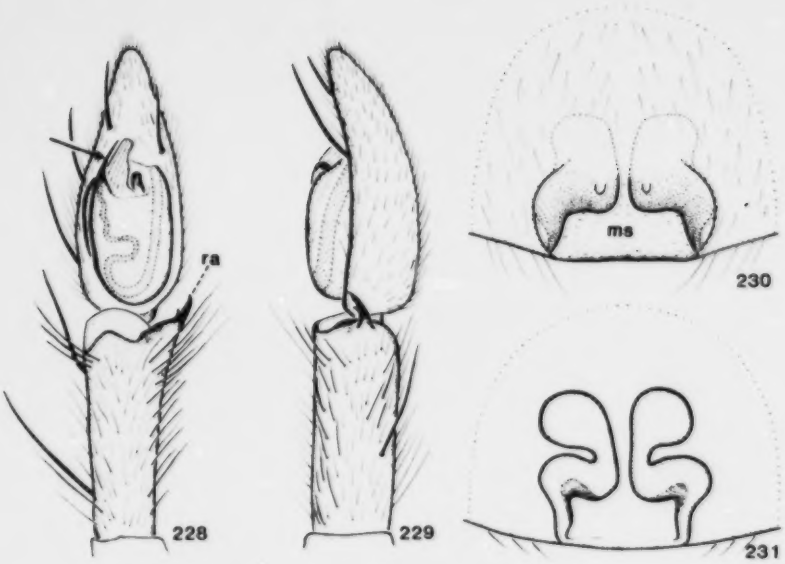
Map 36. Collection localities of *Drassodes mirus* (★) and *D. auriculoides* (●).

Drassodes saccatus (Emerton)

Figs. 228–231; Map 37

Drassus saccatus Emerton, 1890:178, fig. 7 (pl. 4).
Drassodes centralis F.O. Pickard-Cambridge, 1899:60, fig. 13 (pl. 4).
Drassodes celes Chamberlin, 1919*a*:5, fig. 2 (pl. 2).
Drassodes robinsoni Chamberlin, 1919*b*:245, fig. 2 (pl. 16); Kaston 1948:352, fig. 1198 (pl. 62).
Drassodes saccatus: Platnick and Shadab 1976*a*:15, figs. 2, 37–48.

Male. Total length 8.78 ± 1.31 mm; carapace 3.95 ± 0.63 mm long, 2.77 ± 0.51 mm wide; femur II 3.20 ± 0.41 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.13, ALE 0.13, PME 0.15, PLE 0.12, AME–AME 0.15, AME–ALE 0.06, PME–PME 0.09, PME–PLE 0.26, ALE–PLE 0.16; median ocular quadrangle 0.45 long, 0.41 wide at front, 0.38 wide at back. Chelicerae each with 2 retromarginal denticles. Palpal femur with 6–11 dorsodistal macrosetae; retrolateral tibial apophysis short, slender, pointed, with several minute teeth along ventral margin (Figs. 228, 229); embolus rather short, tapered to fine point, nearly straight (Fig. 228); conductor rather broad, arising between and touching both embolus and median apophysis; median apophysis minute, hooked, situated approximately at midline of genital bulb (Fig. 228).



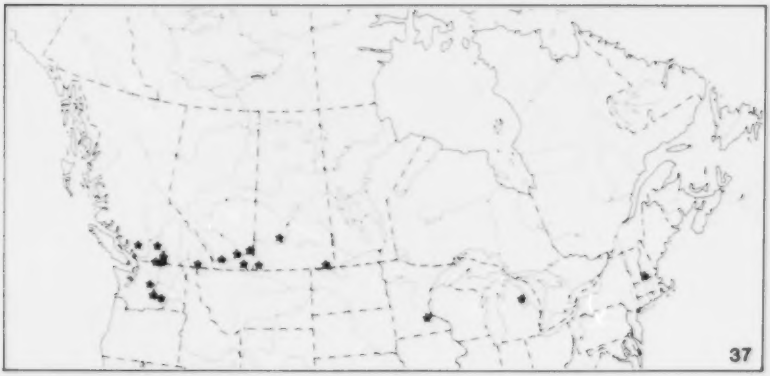
Figs. 228–231. Genitalia of *Drassodes saccatus*. 228, 229, palpus of male; 228, ventral view; 229, retrolateral view; 230, 231, epigynum and spermathecae; 230, ventral view; 231, dorsal view. *ms*, median septum; *ra*, retrolateral tibial apophysis.

Female. Total length 9.14 ± 0.92 mm; carapace 4.12 ± 0.43 mm long, 2.85 ± 0.26 mm wide; femur II 2.97 ± 0.28 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.13, ALE 0.15, PME 0.18, PLE 0.13, AME–AME 0.18, AME–ALE 0.09, PME–PME 0.11, PME–PLE 0.36, ALE–PLE 0.26; median ocular quadrangle 0.54 long, 0.44 wide at front, 0.47 wide at back. Chelicerae as in male. Palpal femur with 2–6 (usually 6) dorsodistal macrosetae; epigynum with median septum approximately twice as broad posteriorly as long, abruptly narrowed anteriorly (Fig. 230); spermathecae each in two parts of nearly equal size (Fig. 231).

Comments. Individuals of *D. saccatus* are distinguished from those of the other Canadian species of *Drassodes* by the following combination of characters: cheliceral retromargin with 2 denticles, palpal femur usually with 6 or more dorsodistal macrosetae, embolus short and nearly straight, retrolateral tibial apophysis slender, and median septum posteriorly broad and abruptly narrowed anteriorly.

Range. Southern British Columbia to New Hampshire, south to southern Mexico.

Biology. Mature males have been taken from mid May to mid September, mature females from late May to November. Specimens have been collected under stones and other objects on the ground, under loose tree bark, in houses, and in association with pinyon and yellow pine, juniper, yucca, allthorn, mesquite, joint-fir, nolina, sagebrush, and reeds.



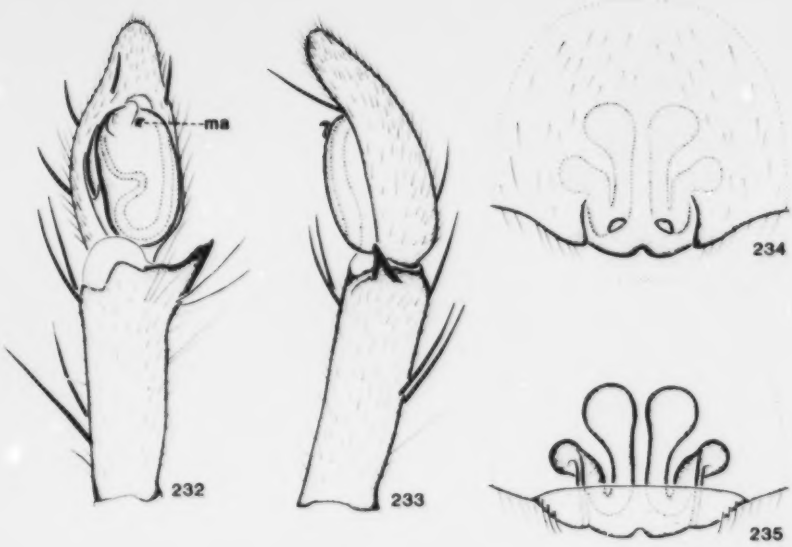
Map 37. Collection localities of *Drassodes saccatus*.

Drassodes neglectus (Keyserling)

Figs. 232–235; Map 38

Drassus neglectus Keyserling, 1887:434, fig. 10 (pl. 6).
Drassus humilis Banks, 1892:20, fig. 60 (pl. 1).
Drassus inornatus Banks, 1895*b*:420.
Drassodes neglectus: Comstock 1903:18; Kaston 1948:351, figs. 1176 (pl. 60), 1188, 1189 (pl. 61), 1195 (pl. 62); Platnick and Shadab 1976*a*:7, figs. 1, 4, 9–20.

Male. Total length 6.54 ± 1.01 mm; carapace 2.82 ± 0.44 mm long, 2.02 ± 0.32 mm wide; femur II 2.30 ± 0.33 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.14, PME 0.16, PLE 0.13, AME–AME 0.18, AME–ALE 0.10, PME–PME 0.12, PME–PLE 0.32, ALE–PLE 0.20; median ocular quadrangle 0.48 long, 0.41 wide at front, 0.43 wide at back. Cheliceral retromargin with 2 denticles. Palpal femur with 3 dorsodistal macrosetae; retrolateral tibial apophysis short, rather stout, pointed at tip, and with variable number of tooth-like processes along ventral margin (Figs. 232, 233); embolus short, distinctly curved (Fig. 232); conductor short, broad, touching embolus; median apophysis minute, hooked, touching conductor near distal margin of genital bulb (Fig. 232).



Figs. 232–235. Genitalia of *Drassodes neglectus*. 232, 233, palpus of male; 232, ventral view; 233, retrolateral view; 234, 235, epigynum and spermathecae; 234, ventral view; 235, dorsal view. *ma*, median apophysis.

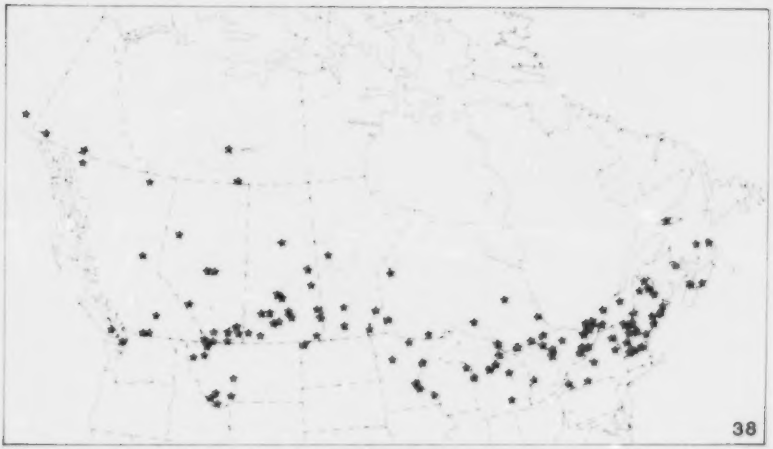
Female. Total length 9.51 ± 0.72 mm; carapace 3.42 ± 0.24 mm long, 2.43 ± 0.17 mm wide; femur II 2.41 ± 0.15 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.13, PME 0.14, PLE 0.12, AME–AME 0.17, AME–ALE 0.07, PME–PME 0.09, PME–PLE 0.26, ALE–PLE 0.16; median ocular quadrangle 0.46 long, 0.38 wide at front, 0.37 wide at back. Chelicerae and palpal femur as in male. Epigynum with median septum not developed (Fig. 234); spermathecae each in 2 elongate club-shaped parts (Fig. 235).

Comments. Individuals of *D. neglectus* are distinguished from those of the other Canadian species of *Drassodes* by the following combination of characters: cheliceral retromargin with 2 denticles; palpal femur with 3 dorsodistal macrosetae; embolus short and distinctly curved; retrolateral tibial apophysis short, pointed, and having several tooth-like processes along ventral margin; and median septum absent.

Range. Alaska to Nova Scotia, south to Arizona, New Mexico, and West Virginia; USSR (Ovtsharenko and Marusik 1988).

Biology. Mature males and females have been taken from March to October. Specimens have been collected at elevations of up to 4360 m,

under stones and loose bark; on pebbly beaches; in fields, talus, and houses; and in association with lodgepole, ponderosa, and jack pine, spruce, fir, juniper, scrub oak, birch, sagebrush, and sphagnum. Kaston (1948) noted that males and females of this species are often found together sharing the same silken retreat. Egg sacs, which have been collected from June to September, are guarded by the mother.



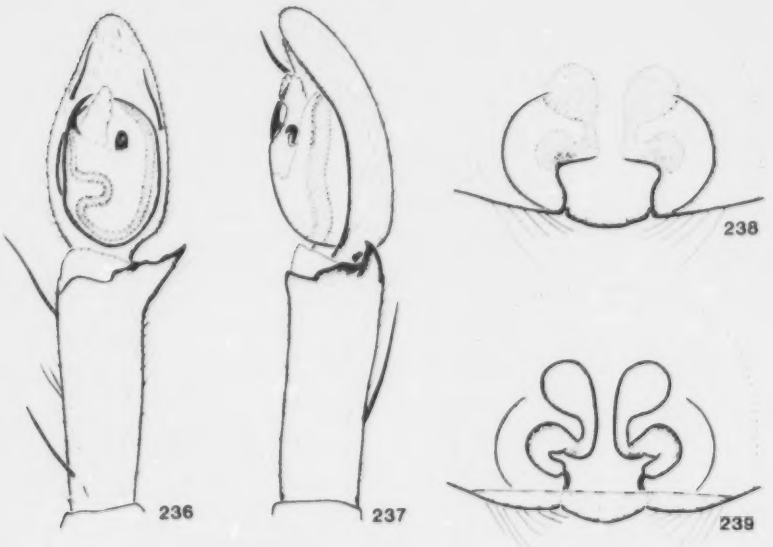
Map 38. Collection localities of *Drassodes neglectus*.

Drassodes auriculoides Barrows

Figs. 236–239; Map 36

Drassodes auriculoides Barrows, 1919:355, fig. 4 (pl. 15); Kaston 1948:352, figs. 1190, 1191 (pl. 61), 1196, 1197 (pl. 62); Platnick and Shadab 1976*a*:18, figs. 49–56.

Male. Total length 8.32 ± 1.09 mm; carapace 3.63 ± 0.45 mm long, 2.61 ± 0.35 mm wide; femur II 3.37 ± 0.39 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.12, ALE 0.13, PME 0.17, PLE 0.12, AME–AME 0.17, AME–ALE 0.06, PME–PME 0.09, PME–PLE 0.23, ALE–PLE 0.12; median ocular quadrangle 0.38 long, 0.41 wide at front, 0.43 wide at back. Cheliceral retromargin with 2 denticles. Palpal femur with 5 or 6 dorsodistal macrosetae; retrolateral tibial apophysis short, pointed at tip, and with few minute teeth along ventral margin (Figs. 236, 237); embolus short, distinctly curved (Fig. 236); conductor rather long, broad; median apophysis small, hooked, not touching conductor (Fig. 236).



Figs. 236–239. Genitalia of *Drassodes auriculoides*. 236, 237, palpus of male; 236, ventral view; 237, retrolateral view; 238, 239, epigynum and spermathecae; 238, ventral view; 239, dorsal view.

Female. Total length 9.09 ± 1.30 mm; carapace 4.07 ± 0.42 mm long, 2.99 ± 0.31 mm wide; femur II 3.23 ± 0.27 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.16, ALE 0.15, PME 0.18, PLE 0.13, AME–AME 0.20, AME–ALE 0.15, PME–PME 0.12, PME–PLE 0.41, ALE–PLE 0.26; median ocular quadrangle 0.59 long, 0.51 wide at front, 0.48 wide at back. Chelicerae as in male. Palpal femur with 3–7 dorsodistal macrosetae. Epigynum with lateral margins long, nearly circular, and with median septum angular and abruptly narrowed anteriorly (Fig. 238); spermathecae each in two parts, the anterior part club-shaped (Fig. 239).

Comments. Individuals of *D. auriculoides* are distinguished from those of the other Canadian species of *Drassodes* by the following combination of characters: embolus short and distinctly curved, median apophysis not touching conductor, cheliceral retromargin with 2 denticles, palpal femur with 5 or 6 dorsodistal macrosetae in males and 3–7 in females, and lateral margins of epigynum long and nearly circular.

Range. Wisconsin to Massachusetts, south to Arkansas and Tennessee.

Biology. Mature males have been taken from late May to late June, and mature females from late May to mid October. Specimens were collected under boards in pastures or in leaf litter. Kaston (1948) found egg sacs guarded by the mothers in August and September; the young were emerging from these sacs.

Genus *Gnaphosa* Latreille

Representatives of the genus *Gnaphosa*, like those of most gnaphosid genera, are primarily nocturnal hunters that remain during the day in silken retreats beneath stones or logs. Mature females are most often found guarding their characteristically flattened egg sacs, which may contain up to 250 eggs. Mature males wander a great deal and are more often collected in pitfall traps.

All members of the genus possess a distinctive serrated keel on the retromargin of each chelicera (Fig. 16). No such structure is found among the members of any other North American gnaphosid genus. The North American species fall into four groups based on characters of the external genitalia (Platnick and Shadab 1975*a*).

Members of the *G. lugubris* group occur mainly in alpine and subarctic habitats; in alpine habitats they are sometimes found in abundance at elevations of up to 4360 m. Four of the eight Canadian species, *G. muscorum* (L. Koch), *G. microps* Holm, *G. borea* Kulczyński, and *G. orites* Chamberlin, are judged to be Holarctic, and the remaining four have close relatives in Europe.

The single Canadian member of the *G. lucifuga* group, *G. clara* (Keyserling), is widespread below an elevation of 3000 m in the western United States and southern Alberta. The *G. sericata* group is represented by a single widespread species, *G. sericata* (L. Koch), which may be found eventually in eastern Canada. The *G. fontinalis* group contains two widespread species that occur or probably occur in Canada, one eastern and the other western.

Description. Total length 3.0–12.0 mm. Carapace ovoid in dorsal view, widest at level of coxae II, narrowed anteriorly, rather flattened, light orange to dark brown, with dark margins and many erect dark setae. From front, anterior row of eyes somewhat recurved, straight, or procurved; posterior row of eyes straight to somewhat recurved; posterior median eyes approximately triangular or ovoid; other eyes circular or somewhat flattened at sides; lateral eyes usually larger than median eyes; anterior eyes separated by their maximum width or less; posterior median eyes separated from each other by half their maximum width or more and from posterior lateral eyes by their horizontal width or more; median ocular quadrangle wider at back than at front, approximately equal in length and width. Chelicerae brown, with serrated keel on retromargin (Fig. 16) and 2 teeth on promargin. Palp-coxal lobes convex laterally (Figs. 5, 17). Sternum light orange to light brown, longer than wide. Legs light orange to light or dark brown, scopulate, usually lacking claw tufts. Abdomen dark orange to brown or gray, elongated, in males with dark shiny scutum. Male palpal tibia (Figs. 241, 245, 257) with strong retrolateral apophysis; embolus short to long, often hair-like, with tip resting along depression on cymbium; median apophysis conspicuous, usually slender and tapered, hooked at tip (Figs. 240, 244, 252). Epigynum (Figs. 242, 246, 250) with distinct lateral margins converging and joining posteriorly and with large prominent hood; spermathecae varying in shape according to species, each spermatheca usually with mesal process (Fig. 243, 247, 255).

Comments. Members of the genus *Gnaphosa* are distinguished from those of the other Canadian gnaphosid genera by the presence of a serrated keel on the cheliceral retromargin. In addition, the palp-coxal lobes are convexly rounded laterally.

Approximately 115 species of *Gnaphosa* are cataloged for the world, of which 25 are recorded in North America (Platnick and Shadab 1975*a*). Twelve are represented in Canada and Alaska.

Key to species of *Gnaphosa*

1. Male 2

   Female 13

2(1). Embolus forming three large coils (Fig. 240) ..... ***sericata* (L. Koch)** (p. 161)

   Embolus forming single coil or none (Figs. 244, 248, 256) ... 3

3(2). Embolus originating on retrolateral side of genital bulb (Figs. 244, 248) 4

   Embolus originating on base or on prolateral side of genital bulb (Figs. 252, 256, 260) 5

4(3). Median apophysis broad, with strongly curved tip (Fig. 244). Spider occurring in eastern Canada (Map 40) ..... ***fontinalis* Keyserling** (p. 163)

   Median apophysis more slender and tapered, less curved at tip (Fig. 248). Spider occurring in western Canada (Map 39) ..... ***californica* Banks** (p. 166)

5(3). Embolus arising broadly near midline of genital bulb, with minute spur near tip (Fig. 252) ..... ***clara* (Keyserling)** (p. 168)

   Embolus more slender throughout, restricted to prolateral margin of genital bulb, and lacking spur near tip but often having spur near base (Figs. 256, 260, 264) 6

6(5). Embolus arising near midlength or farther basally on genital bulb (Figs. 256, 260, 264, 268) 7

   Embolus arising at distal end of genital bulb (Figs. 272, 276, 280, 284) 10

7(6). Embolus with minute denticles near base (Figs. 256, 260) 8

   Embolus lacking denticles (Figs. 264, 268) 9

8(7). Embolus thickened in basal half (Fig. 256) ..... ***snohomish* Platnick & Shadab** (p. 170)

   Embolus thickened only at extreme base (Fig. 260) ..... ***antipola* Chamberlin** (p. 172)

9(7). Embolus arising at extreme base of genital bulb (Fig. 264) ..... ***muscorum* (L. Koch)** (p. 174)

   Embolus arising near midlength of genital bulb (Fig. 268) ..... ***parvula* Banks** (p. 176)

10(6). Embolus broad in basal half, slender distally (Fig. 272) ..... ***microps* Holm** (p. 179)

Embolus slender from base to tip (Fig. 276, 280, 284) 11

11(10). Embolar spur elongated and slender (Fig. 276) ..... ***borea* Kulczyński** (p. 181)

Embolar spur shorter and thicker (Figs. 280, 284) 12

12(11). Embolar spur short, with tip pointed (Fig. 280) ..... ***brumalis* Thorell** (p. 184)

Embolar spur longer, with tip more blunt (Fig. 284) ..... ***orites* Chamberlin** (p. 186)

13(1). Copulatory tubes with 3 coils that are visible externally through integument (Fig. 243) ..... ***sericata* (L. Koch)** (p. 161)

Copulatory tubes with single coil or none, or not visible in dorsal view, and usually not visible externally 14

14(13). Copulatory tubes, if visible in dorsal view, with large flap-like enlargements (Figs. 247, 251) 15

Copulatory tubes lacking large flap-like enlargements 16

15(14). Epigynum broad, with smoothly arched lateral margins (Fig. 250). Spider occurring in western Canada (Map 39) .... ***californica* Banks** (p. 166)

Epigynum narrower, with sinuous lateral margins (Fig. 246). Spider occurring in eastern Canada (Map 40) ..... ***fontinalis* Keyserling** (p. 163)

16(14). Mesal process on spermathecae short and slender (Fig. 255) ..... ***clara* (Keyserling)** (p. 168)

Mesal process on spermathecae longer, usually stouter (Figs. 259, 263, 267) 17

17(16). Median septum approximately triangular in outline (Figs. 270, 274, 282) 18

Median septum rounded (Figs. 258, 262) or not conspicuously developed (Figs. 266, 278, 286) 20

18(17). Median septum nearly as broad as epigynum (Fig. 270) ..... ***parvula* Banks** (p. 176)

Median septum distinctly narrower than epigynum (Figs. 274, 282) 19

19(18). Epigynum widest posteriorly; median septum rather broad (Figs. 282) ..... ***brumalis* Thorell** (p. 184)

Epigynum widest anteriorly; median septum narrower (Fig. 274) ..... ***microps*** **Holm** (p. 179)

20(17). Median septum large (Figs. 258, 262) 21

Median septum not conspicuously developed (Figs. 266, 278, 286) 22

21(20). Epigynal hood large, extending approximately one-third length of epigynum (Fig. 262) ..... ***antipola*** **Chamberlin** (p. 172)

Epigynal hood smaller, extending less than one-third length of epigynum (Fig. 258) ..... ***snohomish*** **Platnick & Shadab** (p. 170)

22(20). Epigynum with anterolateral margins angulate (Fig. 278) ..... ***borea*** **Kulczyński** (p. 181)

Epigynum with anterolateral margins smoothly convex (Figs. 266, 286) 23

23(22). Mesal processes on spermathecae narrowly separated (Fig. 267) ..... ***muscorum*** **(L. Koch)** (p. 174)

Mesal processes on spermathecae widely separated (Fig. 287) ..... ***orites*** **Chamberlin** (p. 186)

Clé des espèces de *Gnaphosa*

1. Mâle 2

Femelle 13

2(1). Embolus formant trois grandes spires (fig. 240) ..... ***sericata*** **(L. Koch)** (p. 161)

Embolus formant une seule spire ou aucune (fig. 244, 248, 256) 3

3(2). Embolus prenant naissance du côté rétrolatéral du bulbe génital (fig. 244, 248) 4

Embolus prenant naissance à la base ou du côté prolatéral du bulbe génital (fig. 252, 256, 260) 5

4(3). Apophyse médiane large, à extrémité fortement courbée (fig. 244). Araignée de l'est du Canada (carte 40) ..... ***fontinalis*** **Keyserling** (p. 163)

Apophyse médiane plus effilée et pointue, moins courbée à l'extrémité (fig. 248). Araignée de l'ouest du Canada (carte 39) ..... ***californica*** **Banks** (p. 166)

5(3). Embolus s'élevant largement près de la ligne médiane du bulbe génital, et muni d'un minuscule éperon près de l'extrémité (fig. 252) ..... ***clara*** **(Keyserling)** (p. 168)

Embolus plus effilé sur toute sa longueur, limité à la marge prolatérale du bulbe génital, et dépourvu d'éperon près de l'extrémité, mais souvent pourvu d'un éperon près de la base (fig. 256, 260, 264) 6

6(5). Embolus s'élevant vers la mi-longueur ou plus loin sur la base du bulbe génital (fig. 256, 260, 264, 268) 7

Embolus s'élevant à l'extrémité distale du bulbe génital (fig. 272, 276, 280, 284) 10

7(6). Embolus muni de denticules minuscules près de la base (fig. 256, 260) 8

Embolus dépourvu de denticules (fig. 264, 268) 9

8(7). Embolus plutôt épais pour la moitié basale (fig. 256) ..... ***snohomish*** **Platnick & Shadab** (p. 170)

Embolus plutôt épais uniquement à l'extrême base (fig. 260) ..... ***antipola*** **Chamberlin** (p. 172)

9(7). Embolus s'élevant à l'extrême base du bulbe génital (fig. 264) ..... ***muscorum*** **(L. Koch)** (p. 174)

Embolus s'élevant vers la mi-longueur du bulbe génital (fig. 268) ..... ***parvula*** **Banks** (p. 176)

10(6). Embolus large pour la moitié basale, effilé distalement (fig. 272) ..... ***microps*** **Holm** (p. 179)

Embolus effilé de la base à l'extrémité (fig. 276, 280, 284) 11

11(10). Éperon embolaire allongé et effilé (fig. 276) ..... ***borea*** **Kulczyński** (p. 181)

Éperon embolaire plus court et plus épais (fig. 280, 284) 12

12(11). Éperon embolaire court, à extrémité pointue (fig. 280) ..... ***brumalis*** **Thorell** (p. 184)

Éperon embolaire plus long, à extrémité plus émoussée (fig. 284) ..... ***orites*** **Chamberlin** (p. 186)

13(1). Tubes copulateurs pourvus de trois spires visibles de l'extérieur par le tégument (fig. 243) ..... ***sericata*** **(L. Koch)** (p. 161)

Tubes copulateurs munis d'une ou d'aucune spire, ou d'une spire non visible en vue dorsale, et généralement non visible de l'extérieur 14

14(13). Tubes copulateurs, s'ils sont visibles en vue dorsale, munis de grands élargissements en forme de rabats (fig. 247, 251) 15

Tubes copulateurs dépourvus de tels élargissements 16

15(14). Épigyne large, à marges latérales faiblement arquées (fig. 250). Araignée de l'ouest du Canada (carte 39) ..... ***californica* Banks** (p. 166)

Épigyne plus étroite, à marges latérales sinueuses (fig. 246). Araignée de l'est du Canada (carte 40) ..... ***fontinalis* Keyserling** (p. 163)

16(14). Processus mésal des spermathèques court et effilé (fig. 255) .. .. ***clara* (Keyserling)** (p. 168)

Processus mésal des spermathèques plus long, généralement plus épais (fig. 259, 263, 267) 17

17(16). Septum médian à contour à peu près triangulaire (fig. 270, 274, 282) 18

Septum médian plutôt rond (fig. 258, 262) ou non remarquablement développé (fig. 266, 278, 286) 20

18(17). Septum médian presque aussi large que l'épigyne (fig. 270) ... . ***parvula* Banks** (p. 176)

Septum médian nettement plus étroit que l'épigyne (fig. 274, 282) 19

19(18). Épigyne plus large postérieurement; septum médian plutôt large (fig. 282) ..... ***brumalis* Thorell** (p. 184)

Épigyne plus large antérieurement; septum médian plus étroit (fig. 274) ..... ***microps* Holm** (p. 179)

20(17). Septum médian grand (fig. 258, 262) 21

Septum médian non remarquablement développé (fig. 266, 278, 286) 22

21(20). Casque de l'épigyne grand, s'étendant sur environ le tiers de la longueur de l'épigyne (fig. 262) ..... ***antipola* Chamberlin** (p. 172)

Casque de l'épigyne plus petit, s'étendant sur moins du tiers de la longueur de l'épigyne (fig. 258) ..... ***snohomish* Platnick et Shadab** (p. 170)

22(20). Épigyne à marges antérolatérales anguleuses (fig. 278) .... ***borea* Kulczyński** (p. 181)

Épigyne à marges antérolatérales faiblement convexes (fig. 266, 286) 23

23(22). Processus mésaux des spermathèques étroitement séparés (fig. 267) ..... ***muscorum*** **(L. Koch)** (p. 174)

Processus mésaux des spermathèques largement séparés (fig. 287) ..... ***orites*** **Chamberlin** (p. 186)

Gnaphosa sericata (L. Koch)

Figs. 240–243; Map 39

Pythonissa sericata L. Koch, 1866:31, figs. 21, 22 (pl. 2).
Gnaphosa sericata: Banks 1895*a*:78; Kaston 1948:346, figs. 1181–1183 (pl. 61); Platnick and Shadab 1975*a*:61, figs. 143–149.
Gnaphosa spiralis F.O. Pickard-Cambridge, 1899:55, fig. 18 (pl. 4).
Gnaphosa peon Chamberlin, 1925:213.
Gnaphosa simplex Franganillo, 1926:69.
Poecilochroa inconspicua Bryant, 1948:408.

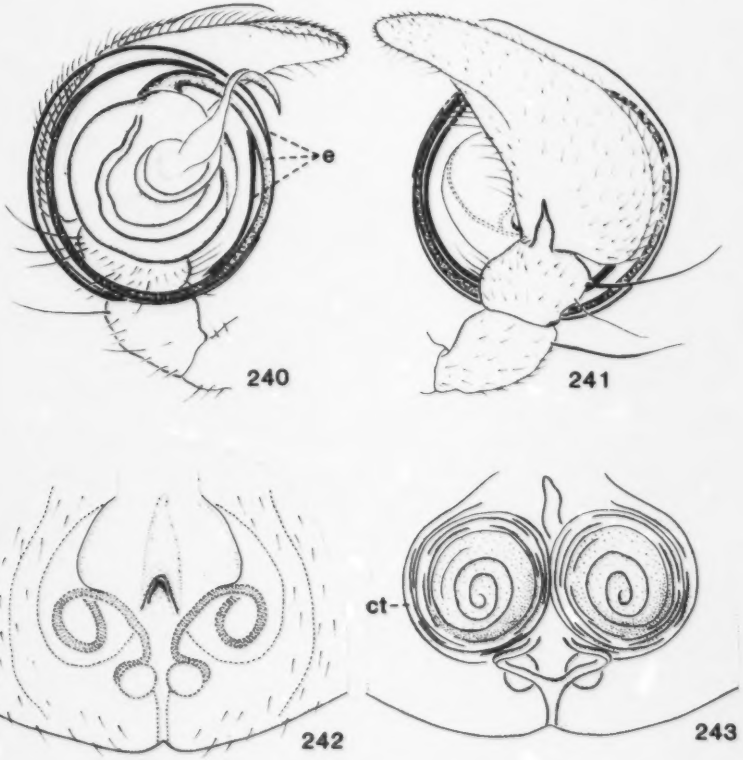
Male. Total length 4.34 ± 0.30 mm; carapace 2.06 ± 0.20 mm long, 1.64 ± 0.11 mm wide; femur II 1.28 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.08, PME 0.05, PLE 0.06, AME–AME 0.05, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.13, ALE–PLE 0.09; median ocular quadrangle 0.17 long, 0.16 wide at front, 0.17 wide at back. Palpal tibia with short slender pointed retrolateral apophysis (Fig. 241); cymbium elongated, rather slender, curved; embolus greatly elongated and slender, forming three large loose coils (Fig. 240); median apophysis elongated, rather slender, abruptly curved distally.

Female. Total length 5.26 ± 0.87 mm; carapace 2.20 ± 0.25 mm long, 1.58 ± 0.20 mm wide; femur II 1.19 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.10, PME 0.06, PLE 0.10, AME–AME 0.06, AME–ALE 0.04, PME–PME 0.09, PME–PLE 0.15, ALE–PLE 0.18; median ocular quadrangle 0.28 long, 0.22 wide at front, 0.23 wide at back. Epigynum with long slender hood (Fig. 242); copulatory tubes greatly elongated, forming three coils (Fig. 243).

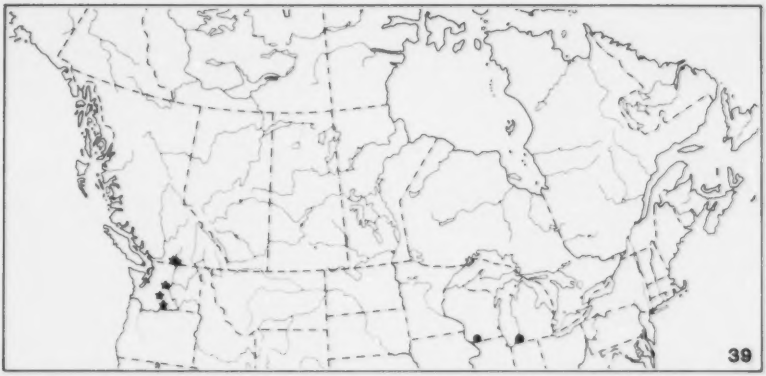
Comments. Individuals of *G. sericata* are distinguished from those of other Canadian species of *Gnaphosa* by the greatly elongated and coiled embolus and by the similarly elongated and coiled copulatory tubes.

Range. Utah to Michigan and New York, south to Mexico, Florida, and Cuba.

Biology. Mature males have been collected from January to September, mature females year round. Individuals have been found at elevations below 2000 m in pastures, crop fields of various kinds, swamps, and beach drift; under stones and surface debris; and on open roads or sidewalks.



Figs. 240–243. Genitalia of *Gnaphosa sericata*. 240, 241, palpus of male; 240, ventral view; 241, retrolateral view; 242, 243, epigynum and spermathecae; 242, ventral view; 243, dorsal view. *ct*, copulatory tube; *e*, embolus.



Map 39. Collection localities of *Gnaphosa sericata* (•) and *G. californica* (★).

Gnaphosa fontinalis Keyserling

Figs. 244–247; Map 40

Gnaphosa fontinalis Keyserling, 1887:426, fig. 4 (pl. 6); Kaston 1948:345, figs. 1178–1180 (pl. 61); Platnick and Shadab 1975*a*:54, figs. 127–134, 150.

Gnaphosa americana Banks, 1896*a*:61.

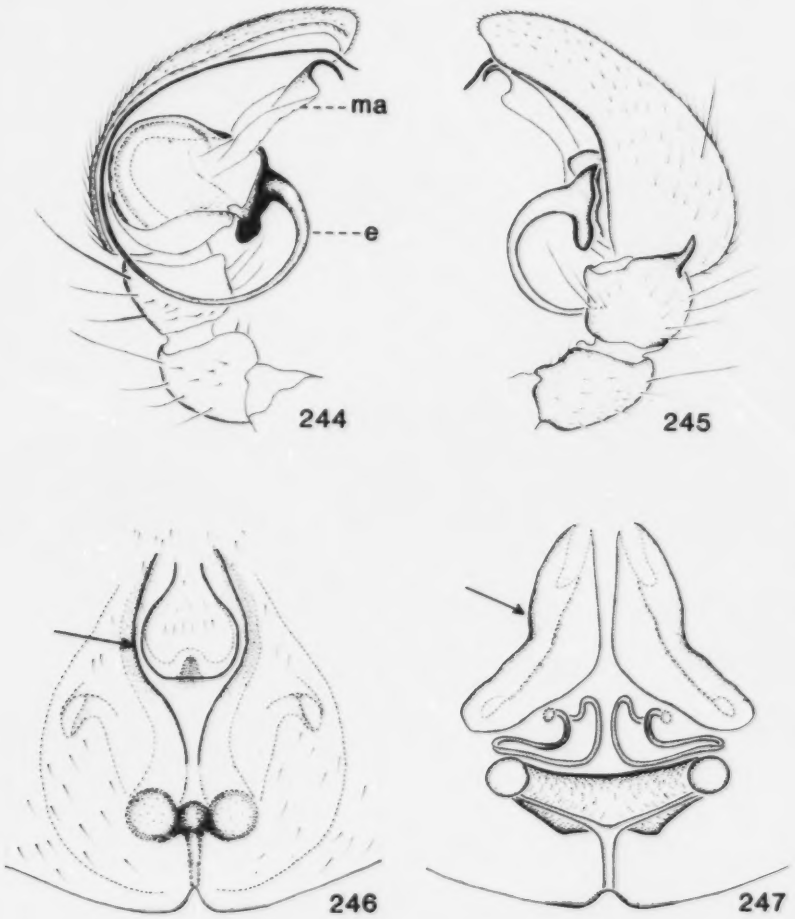
Gnaphosa distincta Banks, 1898:222, fig. 13 (pl. 13).

Gnaphosa texana Chamberlin, 1922:157.

Male. Total length 5.60 ± 0.52 mm; carapace 2.74 ± 0.35 mm long, 2.18 ± 0.31 mm wide; femur II 1.65 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.13, PME 0.09, PLE 0.13, AME–AME 0.11, AME–ALE 0.05, PME–PME 0.09, PME–PLE 0.18, ALE–PLE 0.21; median ocular quadrangle 0.31 long, 0.26 wide at front, 0.27 wide at back. Palpal tibia with short slender pointed retrolateral apophysis (Fig. 245); embolus much elongated, slender, arising on retrolateral side of tegulum (Fig. 244); median apophysis rather broad, abruptly narrowed to slender hook.

Female. Total length 7.48 ± 0.97 mm; carapace 3.43 ± 0.48 mm long, 2.53 ± 0.37 mm wide; femur II 1.88 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.16, PME 0.11, PLE 0.13, AME–AME 0.12, AME–ALE 0.07, PME–PME 0.12, PME–PLE 0.23, ALE–PLE 0.18; median ocular quadrangle 0.34 long, 0.31 wide at front, 0.33 wide at back. Epigynum rather narrow and having sinuous lateral margins (Fig. 246); copulatory tubes with large flap-like enlargements (Fig. 247).

Comments. Adults of *G. fontinalis* are distinguished from those of other species of *Gnaphosa* by the relatively broad median apophysis and by the narrow epigynum having sinuous lateral margins. Large flaplike enlargements on the copulatory tubes are also found in females of *G. californica* Banks, but the width and margins of the epigynum are diagnostic.



Figs. 244–247. Genitalia of *Gnaphosa fontinalis*. 244, 245, palpus of male; 244, ventral view; 245, retrolateral view; 246, 247, epigynum and spermathecae; 246, ventral view; 247, dorsal view. *e*, embolus; *ma*, median apophysis.

There appear to be two varieties of *G. fontinalis* based in part on size, color, external genitalia, and range. Platnick and Shadab (1975*a*) mention a relatively small form having an orange carapace, a narrow median apophysis, and a wide epigynal hood; this form is found mainly in the southeastern and northwestern parts of the range. A larger form having a brown carapace, a wider median apophysis, and a narrower hood occurs mainly in the northeastern and southwestern parts of the range. Males tend to fall into one or the other of these forms, but intermediate females occur. No differences have been detected in the spermathecae or copulatory tubes of the two forms, and we regard the observed differences as polymorphic rather than indicative of specific distinctness.

Range. Wisconsin to New York, south to northwestern Mexico, Texas, and Georgia.

Biology. Mature males have been collected from April to July, and mature females from April to October. Specimens have been collected in pitfall traps in the litter of maple–basswood and pine–oak forests, and in bean crops. Kaston (1948) observed egg sacs in the field from 12 June to 25 September, and spiderlings began emerging in mid July.

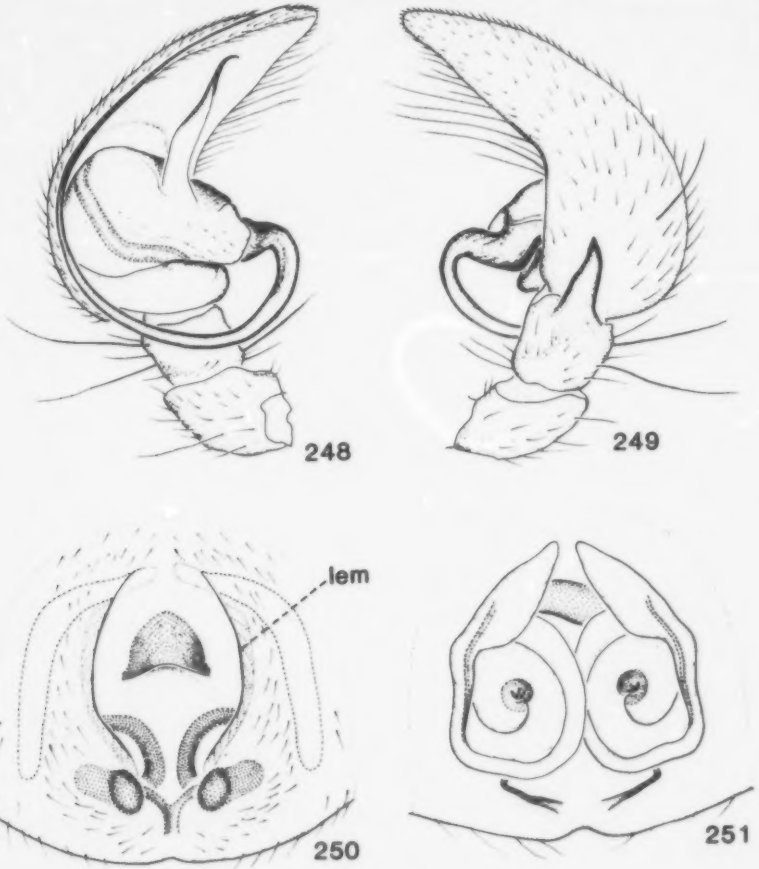
Map 40. Collection localities of *Gnaphosa fontinalis* (★), *G. snohomish* (◆), and *G. antipola* (●).

Gnaphosa californica Banks

Figs. 248–251; Map 39

Gnaphosa californica Banks, 1904*a*:335, fig. 10 (pl. 38); Platnick and Shadab 1975*a*:57, figs. 85, 86, 135–138.

Gnaphosa gosoga Chamberlin, in Chamberlin and Gertsch, 1928:178.



Figs. 248–251. Genitalia of *Gnaphosa californica*. 248, 249, palpus of male; 248, ventral view; 249, retrolateral view; 250, 251, epigynum and spermathecae; 250, ventral view; 251, dorsal view. *lem*, lateral epigynal margin.

Male. Total length 6.08 ± 0.73 mm; carapace 2.89 ± 0.31 mm long, 2.22 ± 0.23 mm wide; femur II 1.94 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.13, PME 0.10, PLE 0.13, AME–AME 0.10, AME–ALE 0.05, PME–PME 0.08, PME–PLE 0.19, ALE–PLE 0.18; median ocular quadrangle 0.30 long, 0.23 wide at front, 0.28 wide at back. Palpal tibia with retrolateral apophysis that is approximately as long as tibia (Fig. 249); embolus long, slender, arising on retrolateral side of genital bulb and strongly protruding at base (Fig. 248); median apophysis long, slender, tapered, somewhat sinuous.

Female. Total length 6.67 ± 1.29 mm; carapace 2.94 ± 0.30 mm long, 2.10 ± 0.24 mm wide; femur II 1.71 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.11, PME 0.11, PLE 0.11, AME–AME 0.13, AME–ALE 0.04, PME–PME 0.06, PME–PLE 0.19, ALE–PLE 0.18; median ocular quadrangle 0.28 long, 0.23 wide at front, 0.29 wide at back. Epigynum broad, with broad hood and with smoothly arched lateral margins (Fig. 250); copulatory tubes elongated, forming one coil, and having large flap-like enlargements (Fig. 251).

Comments. Males of *G. californica* are distinguished from those of other species in the genus by the following combination of characters: embolus arising on the retrolateral side of the genital bulb and median apophysis slender, tapered, and somewhat sinuous. Females are distinguished by the following combination of characters: copulatory tubes having flap-like enlargements and epigynum broad, having smoothly arched lateral margins.

Range. Southern British Columbia, south to California and New Mexico.

Biology. Mature males have been collected from April to September, mature females from April to October. The only habitat datum gives "under rocks" at an elevation of 1360 m.

Gnaphosa clara (Keyserling)

Figs. 252–255; Map 46

Pythonissa clara Keyserling, 1887:429, fig. 6 (pl. 6).
Gnaphosa mulaiki Chamberlin, 1936*b*:6, fig. 24.
Gnaphosa septentrionalis Fox, 1938:228, figs. 2, 8 (pl. 1).
Gnaphosa clara: Ubick and Roth 1973:3; Platnick and Shadab 1975*a*:12, figs. 11–16.

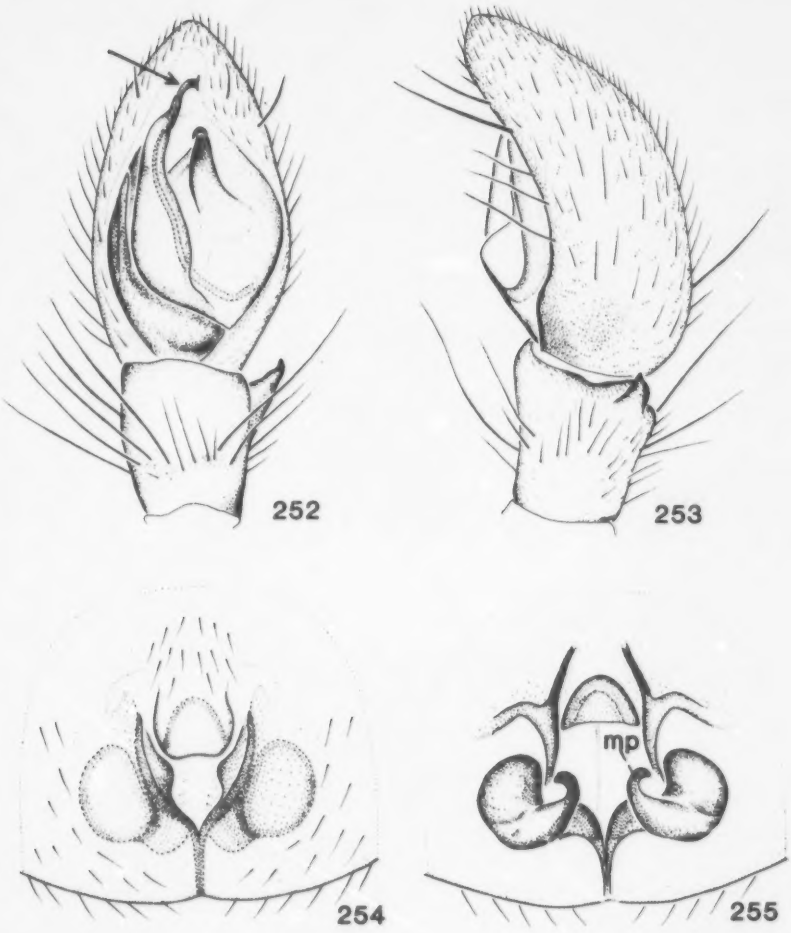
Male. Total length 4.15 ± 0.49 mm; carapace 2.05 ± 0.23 mm long, 1.62 ± 0.25 mm wide; femur II 1.32 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.11, PME 0.08, PLE 0.08, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.09, ALE–PLE 0.11; median ocular quadrangle 0.23 long, 0.18 wide at front, 0.22 wide at back. Palpal tibia with short pointed retrolateral apophysis (Figs. 252, 253); embolus arising broadly near midline of genital bulb, tapered and somewhat sinuous, with minute spur near tip (Fig. 252); median apophysis rather long, tapered, with minute hook at tip.

Female. Total length 5.61 ± 1.45 mm; carapace 2.20 ± 0.32 mm long, 1.62 ± 0.24 mm wide; femur II 1.18 ± 0.16 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.11, PME 0.09, PLE 0.09, AME–AME 0.08, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.13, ALE–PLE 0.11; median ocular quadrangle 0.25 long, 0.21 wide at front, 0.23 wide at back. Epigynum with large hood, with smoothly curved outer margins, and with sinuous inner margins (Fig. 254); spermathecae rather small, somewhat kidney-shaped, with short slender curved mesal processes (Fig. 255).

Comments. Males of *G. clara* are distinguished from those of other species in the genus by the embolus, which arises broadly near the midline of the genital bulb and bears a minute spur near its tip. Females are distinguished by the short slender mesal processes on the spermathecae.

Range. Washington and southern Alberta, south to northern Mexico and southern Texas. Fox (1938) recorded *G. clara* (as *G. septentrionalis*) from Alaska, but the record is doubted.

Biology. Mature males have been collected from May to August, mature females from March to September. Specimens have been found under stones in meadows and have been collected by pitfall traps at the edges of fields. Elevations of 2360–3000 m have been recorded.



Figs. 252–255. Genitalia of *Gnaphosa clara*. 252, 253, palpus of male; 252, ventral view; 253, retrolateral view; 254, 255, epigynum and spermathecae; 254, ventral view; 255, dorsal view. *mp*, mesal process.

Gnaphosa snohomish Platnick & Shadab

Figs. 256–259; Map 40

Gnaphosa snohomish Platnick and Shadab, 1975a:52, figs. 123–126.

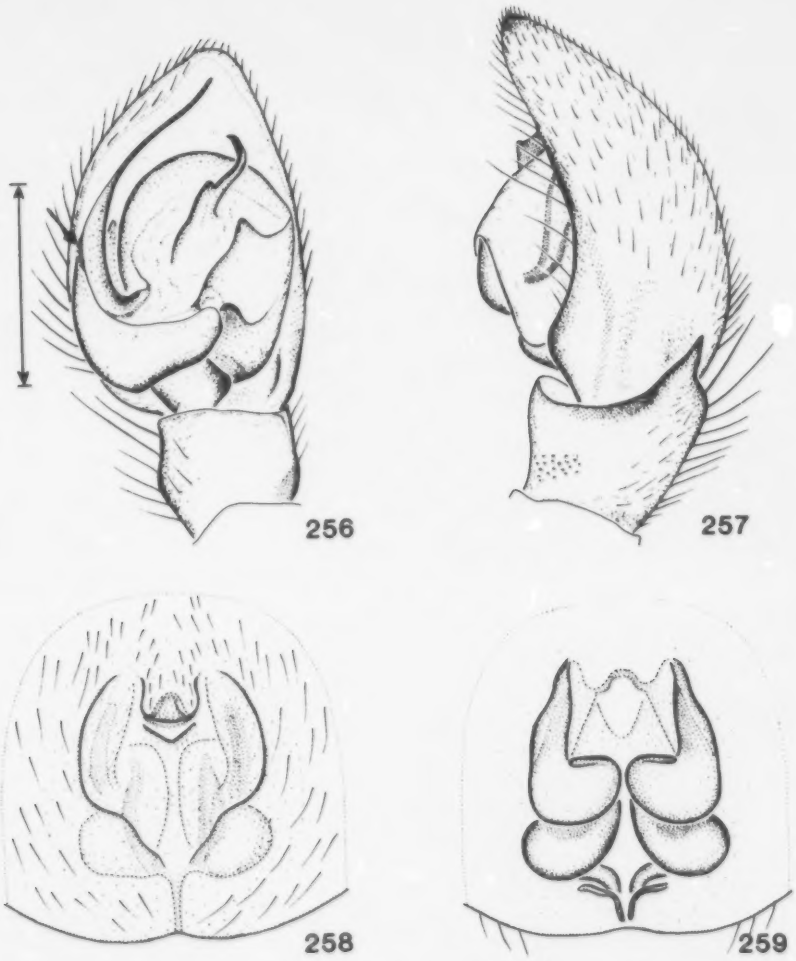
Male. Total length 6.62 mm; carapace 2.85 mm long, 2.27 mm wide; femur II 1.73 mm long (one specimen measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.10, PME 0.09, PLE 0.10, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.16, ALE–PLE 0.17; median ocular quadrangle 0.24 long, 0.22 wide at front, 0.24 wide at back. Palpal tibia with short pointed retrolateral apophysis (Fig. 257); embolus thick basally, slender in distal half, moderately long, arising on prolateral side and near base of genital bulb, and having row of minute denticles on prolateral margin near base (Fig. 256); median apophysis rather long and slender, with small angular prominence near midlength on prolateral side.

Female. Total length 8.14 mm; carapace 3.10 mm long, 2.30 mm wide; femur II 1.69 mm long (one specimen measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.11, PME 0.12, PLE 0.11, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.08, PME–PLE 0.09, ALE–PLE 0.16; median ocular quadrangle 0.24 long, 0.23 wide at front, 0.31 mm wide at back. Epigynum with small hood and with large rounded median septum (Fig. 258); spermathecae each in two large lobe-like parts, the anterior part having a small finger-like mesal process (Fig. 259).

Comments. Males of *G. snohomish* are distinguished from those of other species in the genus by the embolus, which arises near the base of the genital bulb, is thickened in the basal half, and bears a row of minute denticles on its prolateral margin near the base. Females are distinguished by the large rounded median septum and small epigynal hood.

Range. Southern British Columbia and Washington.

Biology. Nothing is recorded.



Figs. 256–259. Genitalia of *Gnaphosa snohomish*. 256, 257, palpus of male; 256, ventral view; 257, retrolateral view; 258, 259, epigynum and spermathecae; 258, ventral view; 259, dorsal view.

Gnaphosa antipola Chamberlin

Figs. 260–263; Map 40

Gnaphosa antipola Chamberlin, 1933:4, figs. 5–7; Platnick and Shadab 1975*a*:52, figs. 117-122.

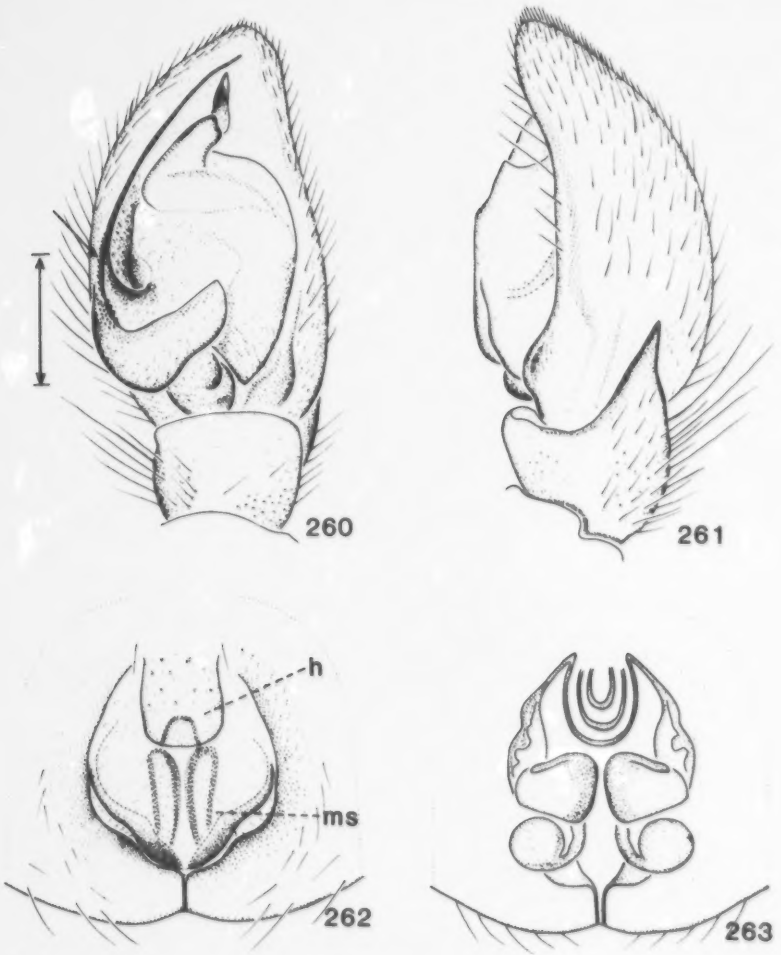
Male. Total length 5.93–7.45 mm; carapace 2.65–3.48 mm long, 2.02–2.77 mm wide; femur II 1.51–2.16 mm long (7 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.11, PME 0.13, PLE 0.10, AME–AME 0.11, AME–ALE 0.05, PME–PME 0.04, PME–PLE 0.18, ALE–PLE 0.23; median ocular quadrangle 0.30 long, 0.22 wide at front, 0.29 wide at back. Palpal tibia with rather short pointed retrolateral apophysis (Fig. 261); embolus arising near base of genital bulb on prolateral side, broad at extreme base, and having many minute denticles near base (Fig. 260); median apophysis broad basally, with stout tooth-like spur near midlength, and hooked at tip.

Female. Total length 7.91 ± 0.11 mm; carapace 3.53 ± 0.34 mm long, 2.64 ± 0.27 mm wide; femur II 2.09 ± 0.26 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.14, PME 0.12, PLE 0.11, AME–AME 0.11, AME–ALE 0.04, PME–PME 0.05, PME–PLE 0.15, ALE–PLE 0.15; median ocular quadrangle 0.30 long, 0.26 wide at front, 0.28 wide at back. Epigynum with large hood that extends approximately one-third its length and with large rounded median septum (Fig. 262); spermathecae each in two lobe-like parts, the anterior part having small finger-like mesal process (Fig. 263).

Comments. Males of *G. antipola* are distinguished from those of other species in the genus by the embolus, which arises near the base of the genital bulb, is thickened at its extreme base, and bears many minute denticles near its base. Females are distinguished by the large rounded median septum and large hood.

Range. British Columbia and Idaho, south to northern California, Utah, and western Colorado.

Biology. Mature males have been collected in July and September, mature females from May to September. Individuals have been found under stones and on the ground among willows and sedges, at elevations of 3160–3830 m.



Figs. 260–263. Genitalia of *Gnaphosa antipola*. 260, 261, palpus of male; 260, ventral view; 261, retrolateral view; 262, 263, epigynum and spermathecae; 262, ventral view; 263, dorsal view. *h*, hood; *ms*, median septum.

Gnaphosa muscorum (L. Koch)

Figs. 1, 16, 17, 264-267; Map 41

Pythonissa muscorum L. Koch, 1866:14, figs. 9, 10 (pl. 1).

Gnaphosa muscorum: Thorell 1871:190; Kaston 1948:344, figs. 1152–1155 (pl. 59), 1160 (pl. 60), 1177 (pl. 61); Platnick and Shadab 1975*a*:34, figs. 1, 3–6, 79–84; Grimm 1985:74, figs. 42*a*, 42*b*, 54, 55, 76*a–d*.

Gnaphosa conspersa Thorell, 1877:489. Name preoccupied in genus *Gnaphosa*.

Gnaphosa gigantea Keyserling, 1887:424, fig. 3 (pl. 6).

Male. Total length 8.12 ± 0.79 mm; carapace 4.04 ± 0.36 mm long, 3.14 ± 0.28 mm wide; femur II 2.40 ± 0.23 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.13, PME 0.13, PLE 0.13, AME–AME 0.14, AME–ALE 0.05, PME–PME 0.11, PME–PLE 0.25, ALE–PLE 0.24; median ocular quadrangle 0.38 long, 0.36 wide at front, 0.37 wide at back. Palpal tibia with short pointed retrolateral apophysis (Fig. 265); embolus long, slender, arising at base of genital bulb, and having small spur at base on prolateral side (Fig. 264); median apophysis tapered, sinuous, broad at base, and flattened and hooked at tip.

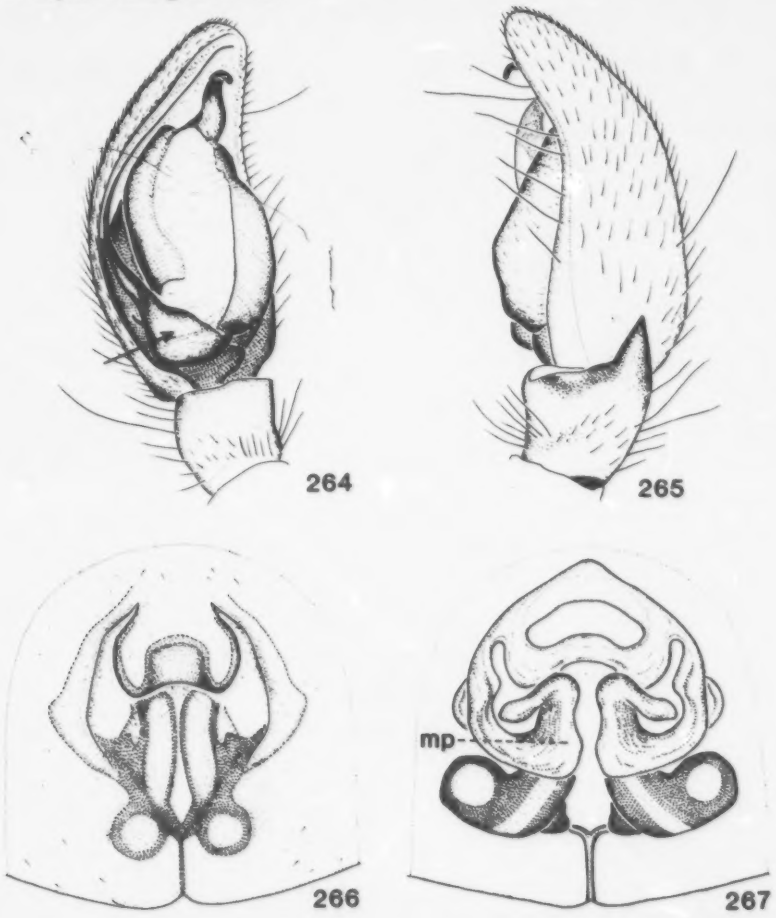
Female. Total length 10.05 ± 1.45 mm; carapace 4.58 ± 0.60 mm long, 3.39 ± 0.41 mm wide; femur II 2.44 ± 0.32 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.15, PME 0.13, PLE 0.13, AME–AME 0.15, AME–ALE 0.06, PME–PME 0.11, PME–PLE 0.27, ALE–PLE 0.24; median ocular quadrangle 0.38 long, 0.33 wide at front, 0.36 wide at back. Epigynum with smoothly convex lateral margins, without median septum, and with large hood; (Fig. 266); spermathecae with mesal processes large, narrowly separated, and angled (Fig. 267).

Comments. Males of *G. muscorum* are distinguished from those of other species in the genus by the long slender embolus that arises at the extreme base of the genital bulb and possesses a small spur at its base. Females are distinguished by the lack of a median septum, by the smoothly convex lateral epigynal margins, by the large hood, and by the large angulate and narrowly separated mesal processes on the spermathecae.

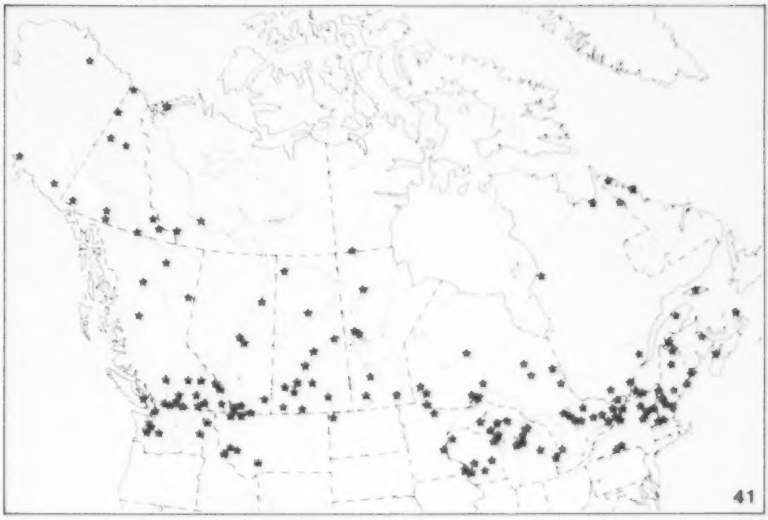
Range. Alaska to Labrador and Nova Scotia, south to New Mexico and to West Virginia; Europe, Asia.

Biology. Mature males have been captured from May to September, mature females from April to November. Egg cocoons were found from June to August and have been described as biconvex, white, and densely woven, with a diameter of 10.7–18.0 mm (Kaston 1948,

Grimm 1985). Individuals are commonly collected under stones, logs, and pieces of fallen bark in open pine and spruce forests, and by pitfall traps in sandy soil and grasslands.



Figs. 264–267. Genitalia of *Gnaphosa muscorum*. 264, 265, palpus of male; 264, ventral view; 265, retrolateral view; 266, 267, epigynum and spermathecae; 266, ventral view; 267, dorsal view. *mp*, mesal process.



Map 41. Collection localities of *Gnaphosa muscorum*.

Gnaphosa parvula Banks

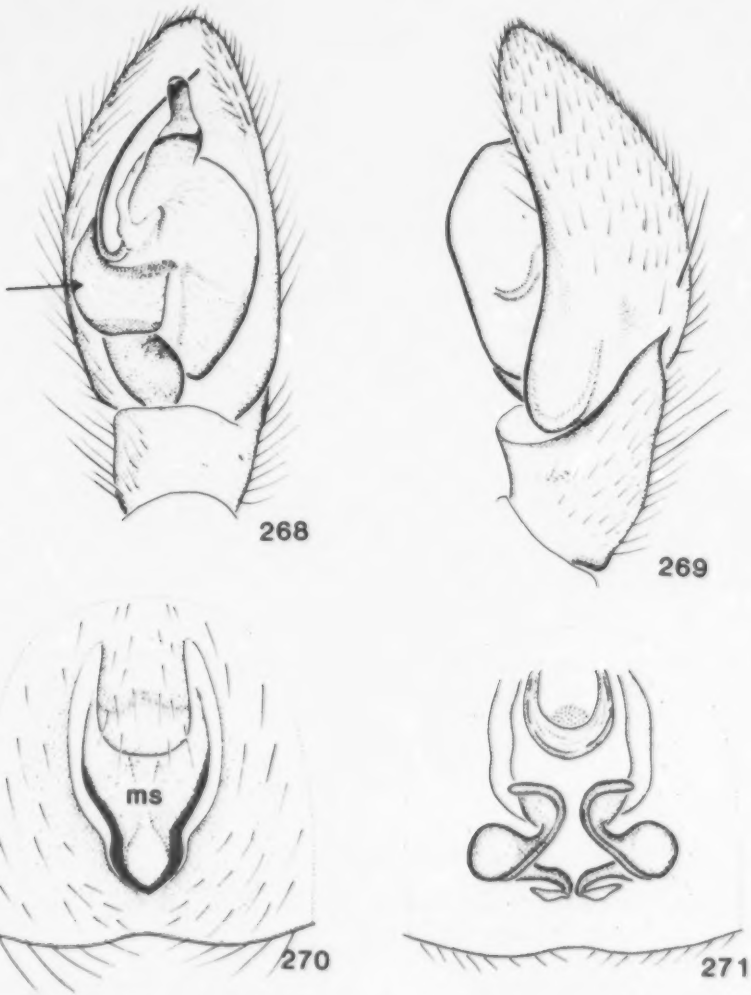
Figs. 268–271; Map 42

Gnaphosa parvula Banks, 1896*a*:61; Kaston 1948:346, figs. 1161, 1162 (pl. 60), 1184 (pl. 61); Platnick and Shadab 1975*a*:48, figs. 111–116.

Male. Total length 6.41 ± 0.39 mm; carapace 2.99 ± 0.21 mm long, 2.25 ± 0.18 mm wide; femur II 1.80 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.10, PME 0.10, PLE 0.10, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.14, ALE–PLE 0.17; median ocular quadrangle 0.29 long, 0.22 wide at front, 0.26 wide at rear. Palpal tibia with retrolateral apophysis rather short, broad at base, and abruptly tapered to a fine point (Fig. 269); embolus slender, somewhat curved, arising near midlength on prolateral side of genital bulb (Fig. 268); median apophysis somewhat flattened and curved distally, thick at base.

Female. Total length 8.01 ± 0.82 mm; carapace 3.34 ± 0.27 mm long, 2.41 ± 0.20 mm wide; femur II 1.88 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.13, PME 0.14, PLE 0.11, AME–AME 0.12, AME–ALE 0.05, PME–PME 0.09, PME–PLE 0.19, ALE–PLE 0.21; median ocular quadrangle 0.32 long, 0.27 wide at front, 0.36 wide at back. Epigynum with

large hood and with narrow triangular median septum (Fig. 270); spermathecae rather small, bulbous, with long slender curved mesal processes (Fig. 271).



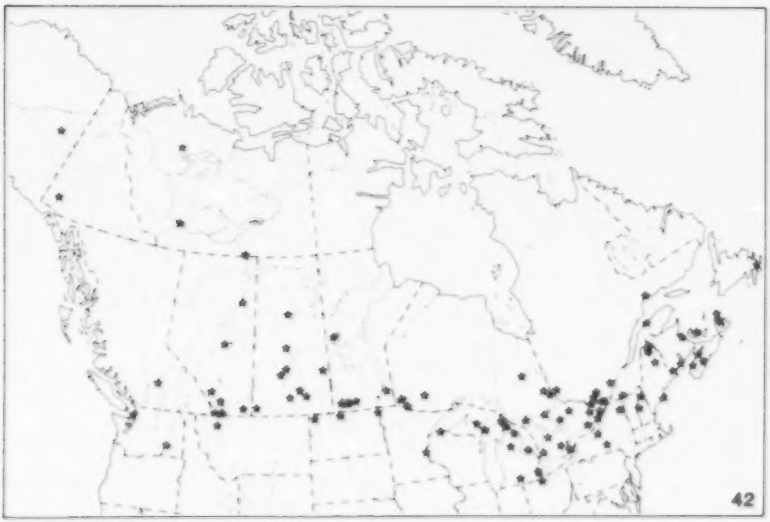
Figs. 268–271. Genitalia of *Gnaphosa parvula*. 268, 269, palpus of male; 268, ventral view; 269, retrolateral view; 270, 271, epigynum and spermathecae; 270, ventral view; 271, dorsal view. *ms*, median septum.

Comments. Males of *G. parvula* are distinguished from those of other species in the genus by the embolus, which arises prolaterally near midlength of the genital bulb and lacks denticles. Females are distinguished by the narrow approximately triangular median septum and by the long, slender, curved mesal processes on the spermathecae.

The three species *G. parvula*, *G. snohomish*, and *G. antipola* together constitute a subgroup to which the closely related *G. nigerrima* L. Koch of Europe also belongs.

Range. Alaska to Newfoundland, south to Colorado and West Virginia.

Biology. Mature males have been taken from late May to November, mature females from late May to August. Specimens have been collected under stones, boards, and beach debris, and in meadows and bogs, at elevations of up to 4300 m.



Map 42. Collection localities of *Gnaphosa parvula*.

Gnaphosa microps Holm

Figs. 272–275; Map 43

Gnaphosa microps Holm, 1939:9, fig. 4; Platnick and Shadab 1975*a*:44, figs. 101–106; Grimm 1985:70, figs. 41*a*, 41*b*, 79, 80.

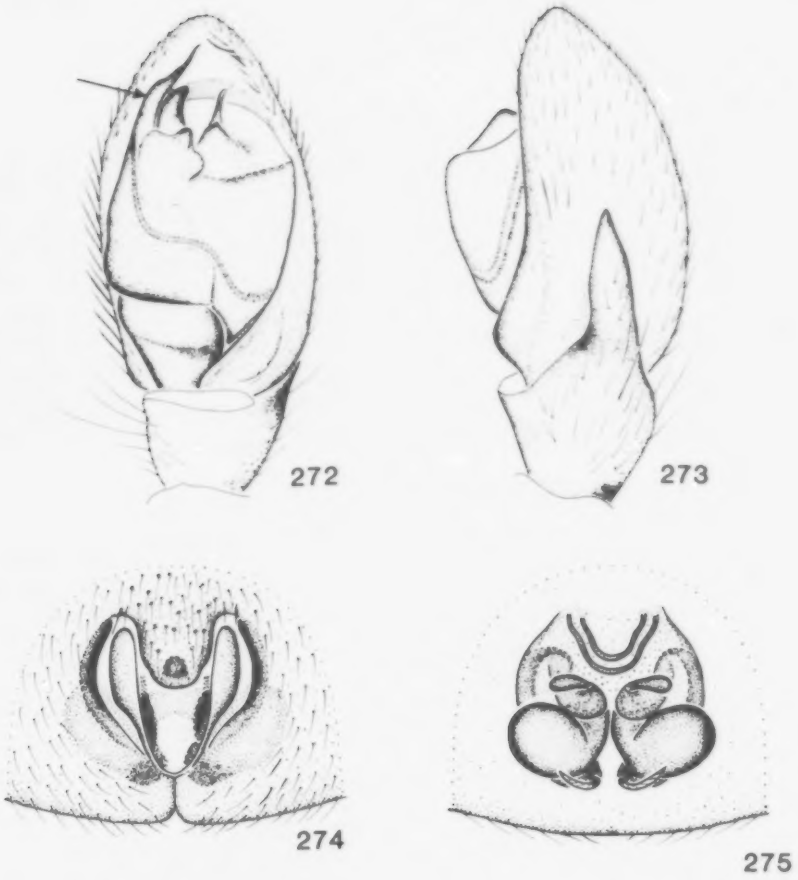
Male. Total length 6.17 ± 0.52 mm; carapace 2.65 ± 0.11 mm long, 2.00 ± 0.12 mm wide; femur II 1.56 ± 0.06 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.09, PME 0.08, PLE 0.08, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.14, ALE–PLE 0.14; median ocular quadrangle 0.24 long, 0.20 wide at front, 0.21 wide at back. Palpal tibia with retrolateral apophysis long, rather broad throughout most of its length, tapered bluntly at tip (Fig. 273); embolus slender distally, rather broad in basal two-thirds, arising distally on prolateral side of genital bulb, and having spur equal to two-thirds its length at base (Fig. 272); median apophysis short, slender, hooked at tip.

Female. Total length 6.24 ± 0.86 mm; carapace 2.52 ± 0.31 mm long, 1.88 ± 0.21 mm wide; femur II 1.41 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.13, PME 0.09, PLE 0.10, AME–AME 0.07, AME–ALE 0.04, PME–PME 0.08, PME–PLE 0.15, ALE–PLE 0.17; median ocular quadrangle 0.28 long, 0.20 wide at front, 0.26 wide at back. Epigynum widest anteriorly, with large hood, and with rather narrow triangular median septum (Fig. 274); spermathecae rather large, round, with stout curved mesal processes (Fig. 275).

Comments. Males of *G. microps* are distinguished from those of other species of *Gnaphosa* by the embolus, which arises distally on the prolateral side of the genital bulb and is rather broad in the basal two-thirds and slender distally. Females are distinguished by the anteriorly wide epigynum, narrow triangular median septum, and rounded spermathecae having stout mesal processes.

Range. Alaska to Newfoundland, south to Colorado and northern New England; Europe (Grimm 1985), USSR (Ovtsharenko and Marusik 1988).

Biology. Mature males have been captured from June to September, mature females from May to September. Collections were made by pitfall traps in willow thickets at elevations above 1100 m in Yukon Territory and up to 3800 m in Colorado. In Europe, specimens were found mainly under stones and in moss in birch forests. Others were recorded from meadows and moors (Grimm 1985).



Figs. 272–275. Genitalia of *Gnaphosa microps*. 272, 273, palpus of male; 272, ventral view; 273, retrolateral view; 274, 275, epigynum and spermathecae; 274, ventral view; 275, dorsal view.

Map 43. Collection localities of *Gnaphosa microps*.

Gnaphosa borea Kulczyński

Figs. 276–279; Map 44

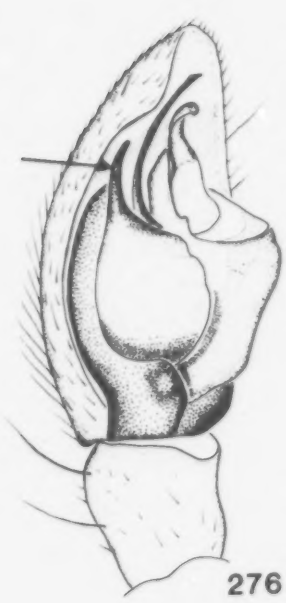
Gnaphosa borea Kulczyński, 1908:9, fig. 6 (pl. 1); Ovtsharenko and Marusik 1988: 207, figs. 7–11.

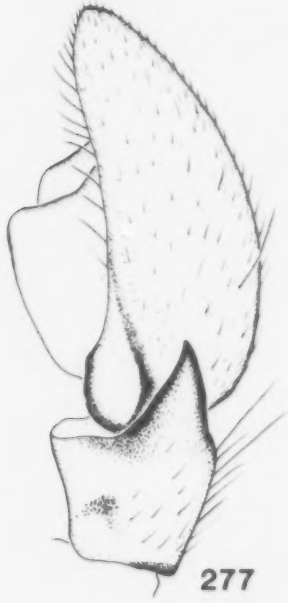
Gnaphosa mima Chamberlin, 1933:2, figs. 3, 4; Platnick and Shadab 1975*a*:38, figs. 87–93.

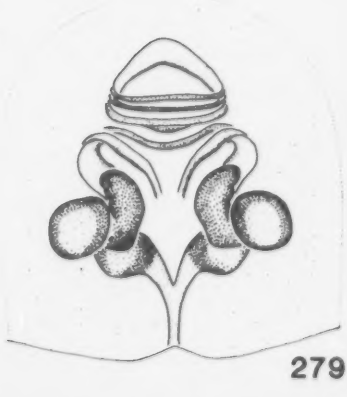
Gnaphosa subparvula Fox, 1938:230, fig. 5 (pl. 2).

Gnaphosa orites: Platnick and Shadab 1975*a*:46, figs. 109, 110 (misidentification, female only).

Male. Total length 6.47 ± 0.21 mm; carapace 3.25 ± 0.15 mm long, 2.49 ± 0.11 mm wide; femur II 1.94 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.10, PME 0.10, PLE 0.10, AME–AME 0.10, AME–ALE 0.04, PME–PME 0.09, PME–PLE 0.14, ALE–PLE 0.22; median ocular quadrangle 0.30 long, 0.23 wide at front, 0.28 wide at back. Palpal tibia with retrolateral apophysis rather short, broad at base, and pointed at tip (Fig. 277); embolus long, slender, curved, arising at distal end of genital bulb, and with slender spur at base (Fig. 276); median apophysis somewhat tapered, broad at base and curved at tip.







Figs. 276–279. Genitalia of *Gnaphosa borea*. 276, 277, palpus of male; 276, ventral view; 277, retrolateral view; 278, 279, epigynum and spermathecae; 278, ventral view; 279, dorsal view.

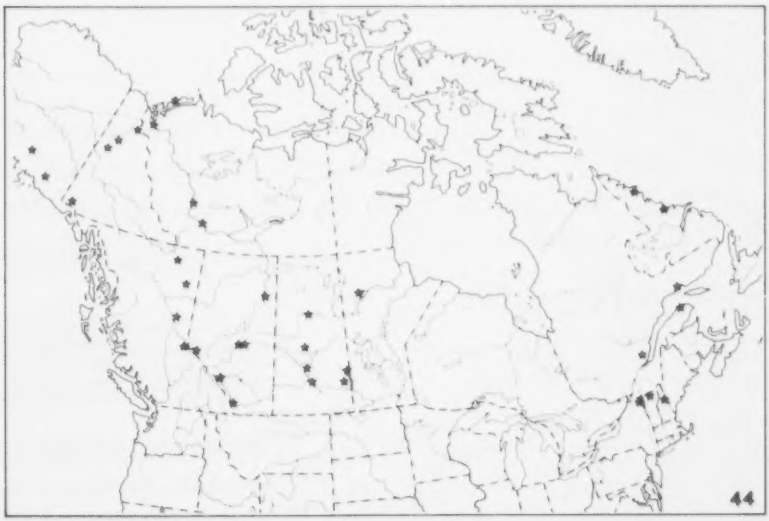
Female. Total length 7.54 ± 0.56 mm; carapace 3.31 ± 0.31 mm long, 2.38 ± 0.20 mm wide; femur II 2.38 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME

0.06, ALE 0.14, PME 0.11, PLE 0.11, AME–AME 0.06, AME–ALE 0.05, PME–PME 0.05, PME–PLE 0.19, ALE–PLE 0.21; median ocular quadrangle 0.30 long, 0.24 wide at front, 0.28 wide at back. Epigynum with large hood, without median septum, and with angulate anterolateral margins (Fig. 278); spermathecae small, round, with broad longitudinal mesal processes (Fig. 279).

Comments. Males of *G. borea* are distinguished from those of other Canadian species in the genus by the embolus, which arises distally on the genital bulb, is elongate and slender, and bears a slender spur at its base. Females are distinguished by the lack of a median septum and by the angulate anterolateral epigynal margins.

Range. Alaska to Labrador, south to New Mexico and to northern New England; Siberia.

Biology. Mature males and females have been collected from June to August. Individuals were found under stones and on moss, or were collected in pitfall traps in marshes or among willows. Elevations of 1000 m (Alaska) or up to 3900 m (Colorado) are recorded.



Map 44. Collection localities of *Gnaphosa borea*.

Gnaphosa brumalis Thorell

Figs. 280–283; Map 45

Gnaphosa brumalis Thorell, 1875c:497; Kaston 1948:346, figs. 1156, 1157 (pl. 59), 1185 (pl. 61); Platnick and Shadab 1975a:41, figs. 94–100.
Gnaphosa scudderi Thorell, 1877:491.

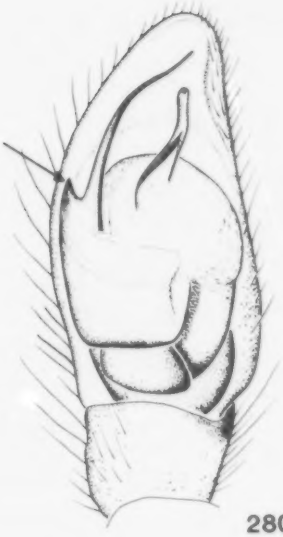
Male. Total length 7.21 ± 0.41 mm; carapace 3.33 ± 0.29 mm long, 2.62 ± 0.24 mm wide; femur II 2.23 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.11, PME 0.09, PLE 0.11, AME–AME 0.08, AME–ALE 0.04, PME–PME 0.07, PME–PLE 0.16, ALE–PLE 0.21; median ocular quadrangle 0.31 long, 0.23 wide at front, 0.25 wide at back. Palpal tibia with retrolateral apophysis moderately long, stout, pointed (Fig. 281); embolus long, slender, arising distally on genital bulb, and having short pointed spur at base (Fig. 280); median apophysis long, slender, somewhat hooked at tip.

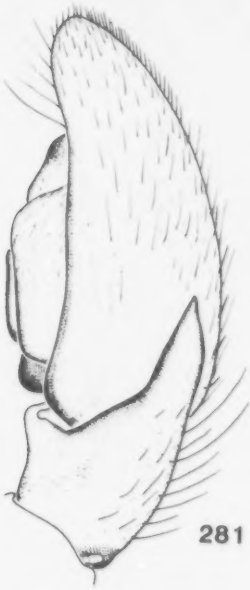
Female. Total length 8.72 ± 0.93 mm; carapace 3.75 ± 0.27 mm long, 2.79 ± 0.19 mm wide; femur II 2.27 ± 0.15 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.13, PME 0.11, PLE 0.12, AME–AME 0.13, AME–ALE 0.04, PME–PME 0.10, PME–PLE 0.22, ALE–PLE 0.23; median ocular quadrangle 0.36 long, 0.31 wide at front, 0.32 wide at back. Epigynum widest posteriorly, with large hood and broad median septum (Fig. 282); spermathecae ovoid, with slender angulate mesal processes (Fig. 283).

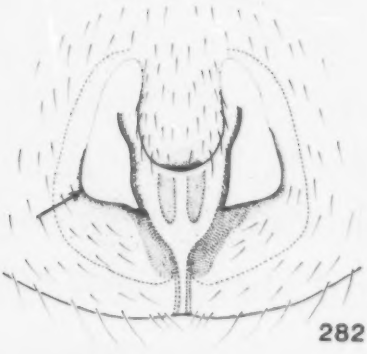
Comments. Males of *G. brumalis* are distinguished from other species in the genus by the embolus, which is slender, arises distally on the genital bulb, and bears a short pointed spur at its base. Females are distinguished by the rather broad median septum, by the posteriorly widened epigynum, and by the spermathecae, which are ovoid and have slender angulate mesal processes.

Range. Alaska to Labrador, south to Arizona, New Mexico, and northern New England.

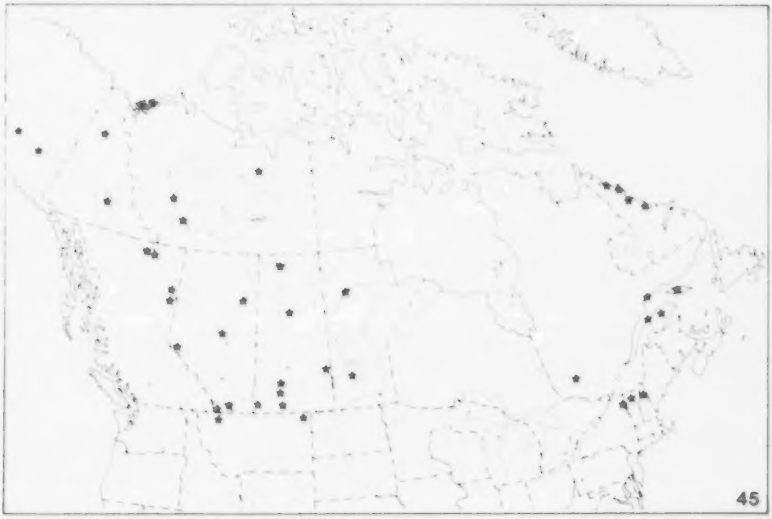
Biology. Mature males have been taken from June to August, mature females from April to September. Specimens have been collected under stones in pine forests, on talus slopes, and in tundra. Elevations of 1300 m (Yukon Territory) and up to 4400 m (Colorado) are on record.







Figs. 280–283. Genitalia of *Gnaphosa brumalis*. 280, 281, palpus of male; 280, ventral view; 281, retrolateral view; 282, 283, epigynum and spermathecae; 282, ventral view; 283, dorsal view.



Map 45. Collection localities of *Gnaphosa brumalis*.

Gnaphosa orites Chamberlin

Figs. 284–287; Map 46

Gnaphosa orites Chamberlin, 1922:158; Platnick and Shadab 1975*a*:46, figs. 65, 107, 108 (male only; female = *G. borea*).

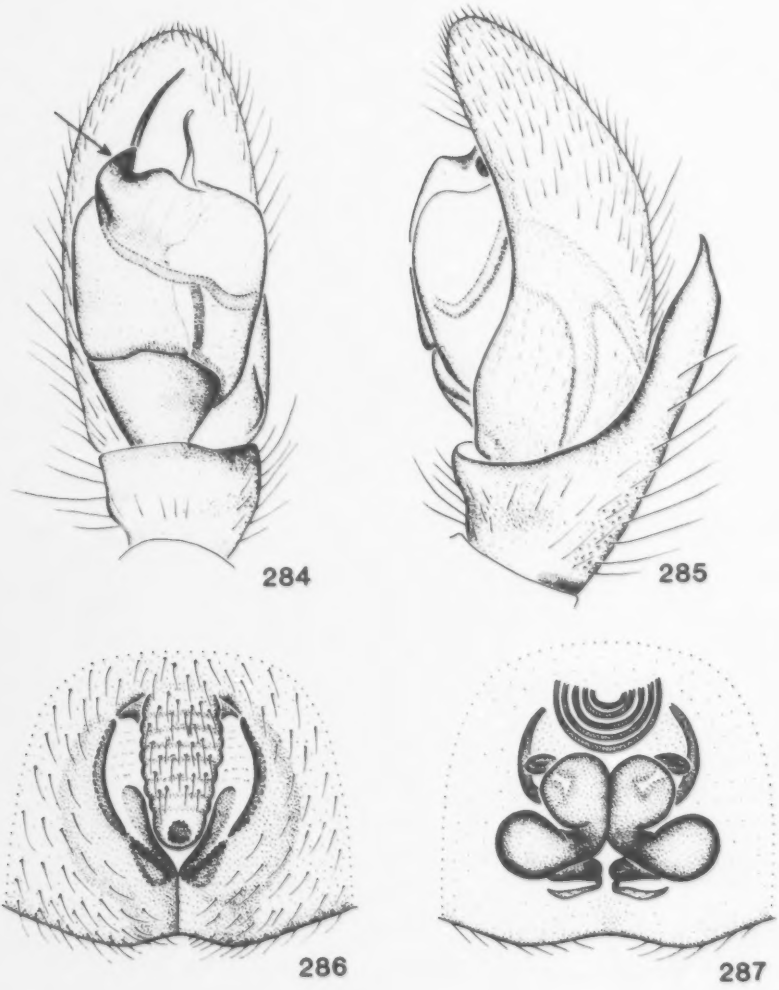
Gnaphosa labradorensis Fox, 1938:231, fig. 1 (pl. 1).

Gnaphosa humilis Holm, 1939:7, fig. 3. Name preoccupied in genus *Gnaphosa*.

Gnaphosa holmi Lohmander, 1942:47. New name for *Gnaphosa humilis* Holm, preoccupied.

Gnaphosa microps: Platnick and Shadab 1975*a*:44 (in part: misidentified females only from Great Whale River, Que., and Coppermine, Mackenzie District).

Male. Total length 5.00 ± 0.31 mm; carapace 2.26 ± 0.12 mm long, 1.79 ± 0.15 mm wide; femur II 1.38 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.09, PLE 0.08, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.08, ALE–PLE 0.10; median ocular quadrangle 0.23 long, 0.19 wide at front, 0.22 wide at back. Palpal tibia with retrolateral apophysis long, broad, abruptly tapered to sharp point at tip (Fig. 285); embolus short, slender, nearly straight, arising distally on genital bulb, and having moderately long blunt spur at base (Fig. 284); median apophysis rather long, slender, sinuous, somewhat hooked at tip.



Figs. 284–287. Genitalia of *Gnaphosa orites*. 284, 285, palpus of male; 284, ventral view; 285, retrolateral view; 286, 287, epigynum and spermathecae; 286, ventral view; 287, dorsal view.

Female. Total length 7.99 mm, 8.06 mm; carapace 2.74 mm, 3.41 mm long, 2.01 mm, 2.51 mm wide; femur II 1.52 mm, 2.06 mm long (two specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.11, PME 0.10, PLE 0.12, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.07, PME–PLE 0.16, ALE–PLE 0.21;

median ocular quadrangle 0.33 long, 0.25 wide at front, 0.27 wide at back. Epigynum with long hood, largely obscuring (in ventral view) low median septum accompanied by short lateral excavations (Fig. 286); spermathecae with enlarged anterior lobes from which lateral processes protrude (Fig. 287).

Comments. Males of *G. orites* are distinguished from those of the other Canadian species in the genus by the embolus, which arises distally on the genital bulb and has a moderately long blunt spur at its base. Females are distinguished by the low median septum (largely obscured in ventral view by the long epigynal hood) accompanied by short lateral excavations and the anteriorly enlarged spermathecae with protruding processes.

Range. Alaska to Labrador, south to Wyoming and northern New England; Europe; USSR (Ovtsharenko and Marusik 1988). The Labrador record is unspecified.

Biology. Mature males have been collected from June to September, mature females from late May through late August. Specimens have been collected by pitfall traps in a pine forest.

Map 46. Collection localities of *Gnaphosa clara* (▲) and *G. orites* (●).

Genus *Callilepis* Westring

The Holarctic genus *Callilepis* comprises a small group of gnaphosids that inhabit dry places such as rocky hillsides, quarries, and sandy beaches. These spiders use surface debris as daytime shelter; at least some species are specialized feeders on ants. The main structural character unique to these gnaphosids is a translucent lamina on the cheliceral retromargin (Fig. 18). *Callilepis* is most closely related to the southern hemisphere genus *Eilica*, whose species have two or more such laminae.

Description. Total length 2.5–7.0 mm. Carapace elongate-ovoid, widest at level between coxae II and III, low, greatly narrowed anteriorly, light orange to dark brown, often covered with scale-like setae. From front, anterior row of eyes procurved and posterior row of eyes straight; anterior eyes and posterior lateral eyes circular; posterior median eyes flattened, nearly transverse; lateral eyes larger than median eyes; anterior eyes separated by their maximum width or somewhat less; posterior eyes separated by half their width or more; median ocular quadrangle wider than long, wider at back than at front. Chelicerae with translucent retromarginal lamina (Fig. 18). Palp-coxal lobes angular laterally, convergent anteriorly (Fig. 19). Sternum rounded, not extending between coxae IV. Leg formula 4123; distitarsi with claw tufts; basitarsi lacking preening comb; trochanters without notches; typical macrosetal pattern: femora I, II d1-1-1, p0-0-1; III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-0-1, r0-0-1; patellae III p0-1-0, r0-1-0; IV r0-1-0; tibiae I v1-2-2; II p0-0-1, v1-2-2; III d1-0-0, p1-1-1, v1-2-2, r0-1-1; IV d1-0-0, p1-1-1, v1-2-2, r0-1-1; basitarsi I, II v2-0-2; III p0-1-2, v2-2-2, r0-1-2; IV p1-2-2, v2-2-2, r1-2-2. Abdomen dark gray, elongate, in males with dark shiny scutum, sometimes with pair of white spots near midline. Palpus of male (Figs. 288, 291, 294) lacking retrolateral tibial apophysis; embolus long, slender, arising at middle or on retrolateral side of genital bulb, extending transversely to prolateral side, and winding around conductor distally; median apophysis and terminal apophysis absent; conductor large, tapered, extending distally nearly to tip of cymbium, and having basally directed spur. Epigynum (Figs. 289, 292, 295) with distinct anterior and (usually) lateral margins and with broad flat mesal area; copulatory openings situated laterally at anterior end of epigynum; spermathecae long, rather plump, tortuous, extending nearly to or beyond anterior epigynal margin.

Comments. Members of the genus *Callilepis* are distinguished from those of the other Canadian genera of Gnaphosidae by the translucent lamina on the cheliceral retromargin, by the long slender embolus wound around the conductor, and by the long, tortuous spermathecae extending far anteriorly.

The genus *Callilepis* includes at least 10 world species, of which seven occur in North America (Platnick 1975). Three species are represented in Canada.

Key to species of *Callilepis*

1. Male 2

   Female 4

2(1). Conductor of palpus with single point at tip; enlarged base of embolus rounded (Figs. 291, 294) 3

   Conductor subdivided at tip; enlarged base of embolus angular (Fig. 288) ..... ***eremella* Chamberlin** (p. 191)

3(2). Exposed part of embolus short, thick (Fig. 291) ..... ***pluto* Banks** (p. 193)

   Exposed part of embolus longer, thinner (Fig. 294) ..... ***imbecilla* (Keyserling)** (p. 195)

4(1). Lateral margins of epigynum smoothly curved; spermathecae extending to anterior epigynal margin (Figs. 292, 293, 295, 296) 5

   Lateral margins of epigynum sinuous; spermathecae not extending to anterior epigynal margin (Figs. 289, 290) ..... ***eremella* Chamberlin** (p. 191)

5(4). Spermathecae smoothly curved, with long lateral extensions (Fig. 293) ..... ***pluto* Banks** (p.193)

   Spermathecae more tortuous, with short lateral extensions (Fig. 296) ..... ***imbecilla* (Keyserling)** (p.195)

Clé des espèces de *Callilepis*

1. Mâle 2

   Femelle 4

2(1). Conducteur du palpe pourvu d'une seule pointe à l'extrémité; base élargie de l'embolus arrondie (fig. 291, 294) 3

   Conducteur subdivisé à l'extrémité; base élargie de l'embolus anguleuse (fig. 288) ..... ***eremella* Chamberlin** (p. 191)

3(2). Partie exposée de l'embolus courte, épaisse (fig. 291) ..... ***pluto* Banks** (p. 193)

Partie exposée de l'embolus plus longue, plus mince (fig. 294) ..... ***imbecilla* (Keyserling)** (p. 195)

4(1). Marges latérales de l'épigyne faiblement courbées; spermathèques s'étendant jusqu'à la marge épigynale antérieure (fig. 292, 293, 295, 296) 5

Marges latérales de l'épigyne sinueuses; spermathèques ne s'étendant pas jusqu'à la marge épigynale antérieure (fig. 289, 290) ..... ***eremella* Chamberlin** (p. 191)

5(4). Spermathèques faiblement courbées, pourvues de longs prolongements latéraux (fig. 293) ..... ***pluto* Banks** (p. 193)

Spermathèques plus tortueuses, pourvues de courts prolongements latéraux (fig. 296) ..... ***imbecilla* (Keyserling)** (p. 195)

Callilepis eremella Chamberlin

Figs. 288–290; Map 47

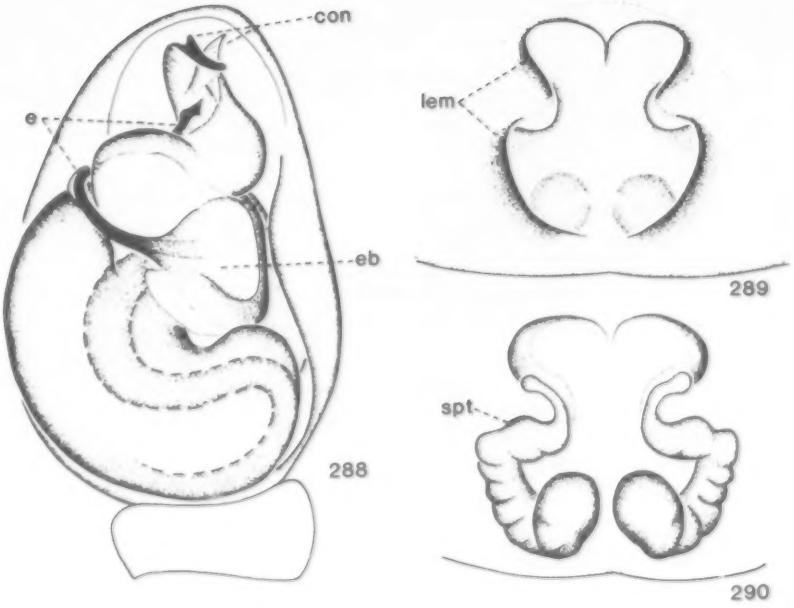
Callilepis eremellus Chamberlin, in Chamberlin and Gertsch, 1928:177.

Callilepis altitudonis Chamberlin, 1936*a*:14, fig. 25.

Callilepis eremella: Platnick 1975:23, figs. 53–59.

Male. Total length 3.34 ± 0.23 mm; carapace 1.51 ± 0.10 mm long, 1.24 ± 0.09 mm wide; femur II 1.03 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.04, PME–PLE 0.05, ALE–PLE 0.08; median ocular quadrangle 0.16 long, 0.15 wide at front, 0.14 wide at back. Embolus arising near retrolateral margin of genital groove and having enlarged angular base; conductor large, subdivided at tip, and having short slender spur (Fig. 288).

Female. Total length 5.29 ± 0.79 mm; carapace 1.76 ± 0.15 mm long, 1.44 ± 0.15 mm wide; femur II 1.19 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.09, PME 0.09, PLE 0.09, AME–AME 0.06, AME–ALE 0.03, PME–PME 0.04, PME–PLE 0.04, ALE–PLE 0.06; median ocular quadrangle 0.23 long, 0.18 wide at front, 0.22 wide at back. Epigynum with thick ridge-like mesally pointed anterior margin; lateral margins long, strongly constricted near middle, and appearing conspicuously sinuous (Fig. 289); spermathecae long, slender, not arched laterally at anterior ends, each spermatheca with small lateral extension (Fig. 290).



Figs. 288–290. Genitalia of *Callilepis eremella*. 288, palpus of male, ventral view; 289, 290, epigynum and spermathecae; 289, ventral view; 290, dorsal view. *e*, embolus; *eb*, embolar base; *con*, conductor; *lem*, lateral epigynal margin; *spt*, spermatheca.

Comments. Individuals of *C. eremella* are distinguished from those of the other Canadian species in the genus by the angular embolar base and subdivided conductor tip in males and by the sinuous lateral epigynal margins and slender anterior ends of the spermathecae of females. As Platnick (1975) points out, it is essential to orient the palpus in a flat plane in order to make accurate identifications of *C. eremella* males; otherwise the tip of the conductor may appear quite different from that shown in the illustrations.

Range. British Columbia and northern Idaho, south to New Mexico and to Baja California, Mexico.

Biology. Mature males have been taken from late April to July, mature females from May to early August. Specimens have been collected from crevices beneath stones and boards in stands of sagebrush, juniper, and nolina. Elevations up to 3300 m have been recorded.

Map 47. Collection localities of *Callilepis eremella* (★) and *C. imbecilla* (●).

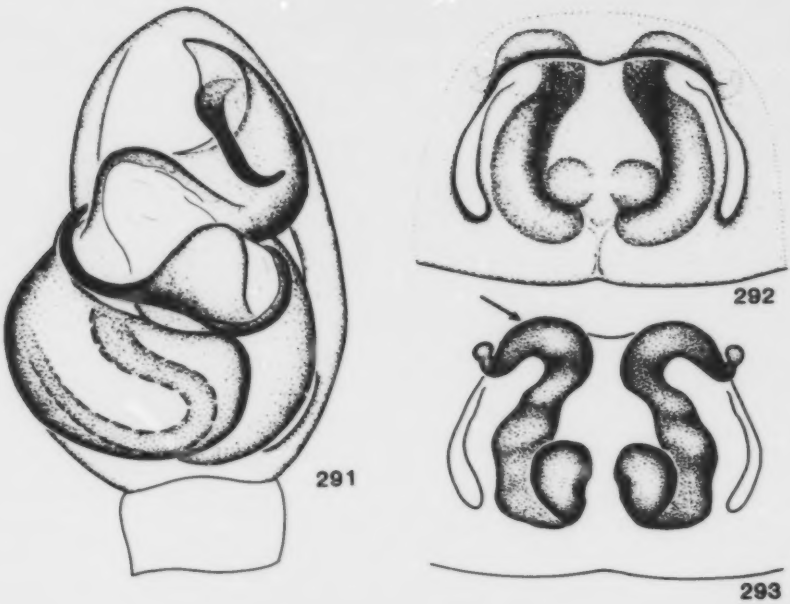
Callilepis pluto Banks

Figs. 18, 19, 291–293; Map 48

Callilepis pluto Banks, 1896a:60; Platnick 1975:8, figs. 1–6, 15–21.
Callilepis femoralis Banks, 1911:441, fig. 11 (pl. 35).
Callilepis imbecilla: Kaston 1948:343, figs. 1150, 1151 (pl. 59), 1158, 1159 (pl. 60).

Male. Total length 3.99 ± 0.18 mm; carapace 1.83 ± 0.08 mm long, 1.57 ± 0.07 mm wide; femur II 1.22 ± 0.06 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.09, PME 0.09, PLE 0.10, AME–AME 0.05, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.03, ALE–PLE 0.09; median ocular quadrangle 0.23 long, 0.15 wide at front, 0.23 wide at back. Embolus arising near middle of genital bulb and having large rounded base (Figs. 291); conductor large, bluntly pointed, straight at tip, and having long beak-like basally directed spur (Fig. 291).

Female. Total length 5.51 ± 0.71 mm; carapace 2.03 ± 0.11 mm long, 1.71 ± 0.18 mm wide; femur II 1.39 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.06, PLE 0.09, AME–AME 0.06, AME–ALE 0.05, PME–PME 0.08, PME–PLE 0.06, ALE–PLE 0.12; median ocular quadrangle 0.24 long, 0.18 wide at front, 0.20 wide at back. Epigynum with anterior margin ridge-like and mesally pointed; lateral epigynal margins long, smoothly curved, each accompanied by deep groove (Fig. 292); spermathecae arched laterally at anterior ends (Fig. 293).

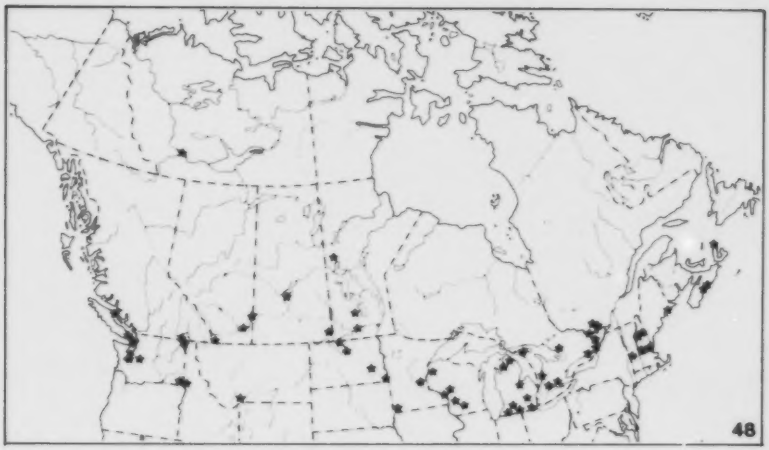


Figs. 291–293. Genitalia of *Callilepis pluto*. 291, palpus of male, ventral view; 292, 293, epigynum and spermathecae; 292, ventral view; 293, dorsal view.

Comments. Individuals of *C. pluto* are distinguished from those of the other Canadian species in the genus by the short embolus and rounded embolar base of the male and by the laterally arched spermathecae of the female.

Range. Western Northwest Territories to Maine, south to Colorado and Alabama.

Biology. Mature males have been taken from late April to early September, mature females from early May to early September. Specimens have been collected under boards and other ground debris, on beaches, in quarries, and in association with pine, fir, spruce, oak, aspen, cottonwood, willow, and various deciduous shrubs. Kaston (1948) recorded an egg sac in July; it was white, plano-convex, and guarded by the female.



Map 48. Collection localities of *Callilepis pluto*.

Callilepis imbecilla (Keyserling)

Figs. 294–296; Map 47

Pythonissa imbecilla Keyserling, 1887:427, fig. 5.
Callilepis imbecilla: Banks 1895*a*:78; Platnick 1975:13, figs. 22–28.
Callilepis munda Chamberlin, 1936*a*:16, figs. 22-24.

Male. Total length 3.30 ± 0.31 mm; carapace 1.56 ± 0.12 mm long, 1.32 ± 0.11 mm wide; femur II 1.00 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.07, PME 0.05, PLE 0.09, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.03, ALE–PLE 0.08; median ocular quadrangle 0.20 long, 0.14 wide at front, 0.18 wide at back. Embolus arising near retrolateral margin of genital bulb and having enlarged rounded base; conductor fine, tapered, strongly curved mesally at tip, and having long basally directed spur (Fig. 294).

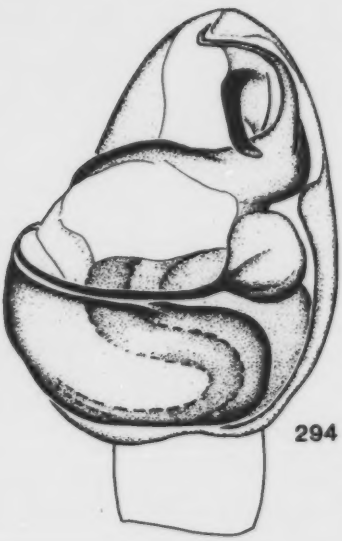
Female. Total length 4.69 ± 0.91 mm; carapace 1.79 ± 0.18 mm long, 1.45 ± 0.16 mm wide; femur II 1.18 ± 0.14 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.08, PME 0.04, PLE 0.08, AME–AME 0.06, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.07, ALE–PLE 0.09; median ocular quadrangle 0.17 long, 0.14 wide at front, 0.18 wide at back. Epigynum with distinct anterior margin and with long smoothly curved lateral margins (Fig. 295); spermathecae long, somewhat angular, with anterior ends

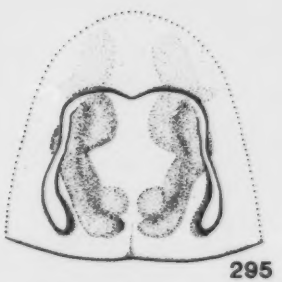
extending far anterior of anterior epigynal margin and with short lateral projections (Fig. 296).

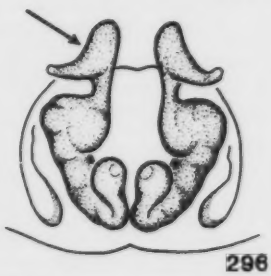
Comments. Individuals of *C. imbecilla* are distinguished from those of the other Canadian species in the genus by a combination of the following characters: conductor tip undivided, fine, and strongly curved mesally; lateral epigynal margins smoothly curved; and spermathecae extending far anterior of anterior epigynal margin and possessing short lateral projections.

Range. Illinois and southernmost Ontario, south to Texas and Florida.

Biology. Mature males have been taken in May and June, mature females from May to August. In the southern United States, adult males also occur in the winter months and adult females as early as March. Specimens have been collected under boards or in leaf litter in stands of oak, hickory, pine, citrus, and sand pine, as well as on sand dunes and beaches.







Figs. 294–296. Genitalia of *Callilepis imbecilla*. 294, palpus of male, ventral view; 295, 296, epigynum and spermathecae; 295, ventral view; 296, dorsal view.

Genus *Sosticus* Chamberlin

Spiders of the genus *Sosticus* are brownish or gray medium-sized inhabitants of crevices such as those found in tree bark. One species, *S. loricatus* (L. Koch), because of its occurrence in heated buildings in both North America and Eurasia, was once thought to have been introduced here by human transport (Gertsch in Lindroth 1957), but this is not well substantiated (Platnick and Shadab 1976*b*).

Description. Total length 4.1–11.1 mm. Carapace rounded, somewhat narrowed anteriorly, widest immediately posterior to coxae II; carapace brown with darker margins and eye area and with many recumbent dark setae. From front, anterior row of eyes somewhat procurved and posterior eye row more strongly procurved; from above, anterior row recurved and posterior row straight; anterior median eyes circular, dark, smaller than lateral eyes; anterior median eyes separated from each other by approximately their maximum width, virtually touching lateral eyes; posterior median eyes irregularly triangular, light, separated from each other by approximately half their width and from posterior lateral eyes by somewhat more than their width; lateral eyes ovoid; median ocular quadrangle approximately square. Chelicerae with 3 promarginal teeth and with 1 or 2 retromarginal teeth. Palp-coxal lobes narrowed in anterior third. Sternum elongate. Leg formula 4123; segments reddish, with tarsi somewhat darker, scopulate, lacking claw tufts and trochanteral notch; basitarsi with preening brush of fine setae; typical macrosetal pattern: femora I d1-1-0, p0-0-1; II d1-1-0, p0-0-1; III, IV d1-1-1, p0-1-1, r0-1-1; patellae III p0-1-0, r0-1-0; IV r0-1-0; tibiae I v2-2-2 (males), v0-0-0 (females); II v1-2-2 (males), v0-0-0 (females); III d1-1-0, p1-1-1, v2-2-2, r1-1-1; IV d1-1-0, p2-1-1, v2-2-2, r2-1-2; basitarsi I, II v2-2-0; III p1-2-2, v2-2-1, r1-2-2; IV p1-2-2, v2-2-1, r2-2-2. Abdomen dark gray dorsally, in males with large brownish scutum; venter light gray. Palpus of male (Figs. 297, 298, 301, 302) with retrolateral tibial apophysis moderately long, slender or stout, divided or undivided, according to species; embolus long, slender, curved; median apophysis conspicuously enlarged, well sclerotized, situated distally on genital bulb. Epigynum (Figs. 299, 300, 303, 304) with elongated prominent median scape and with hood; spermathecae small, round or elongate, sometimes coiled.

Comments. Members of the genus *Sosticus* are distinguished from those of the other Canadian genera of gnaphosids by the following combination of characters: tibia IV with 2 dorsal macrosetae, median apophysis conspicuously enlarged and situated distally, epigynum with prominent median scape.

The genus comprises one Holarctic species and two strictly North American species (Platnick and Shadab 1976*b*). The Holarctic member and one of the strictly North American members are represented in Canada.

Key to species of *Sosticus*

1. Male 2

   Female 3

2(1). Embolus arising approximately at midlength of genital bulb (Fig. 297); median apophysis subdivided; retrolateral tibial apophysis long, slender, undivided (Fig. 298) ..... ***insularis*** **(Banks)** (p. 199)

   Embolus arising at base of genital bulb (Fig. 301); median apophysis entire; retrolateral tibial apophysis short, divided (Fig. 302) ..... ***loricatus*** **(L. Koch)** (p. 201)

3(1). Median scape swollen in basal half (Fig. 299); spermathecae elongate (Fig. 300) ..... ***insularis*** **(Banks)** (p. 199)

   Median scape narrowed in basal half (Fig. 303); spermathecae coiled (Fig. 304) ..... ***loricatus*** **(L. Koch)** (p. 201)

Clé des espèces de *Sosticus*

1. Mâle 2

   Femelle 3

2(1). Embolus s'élevant vers la mi-longueur du bulbe génital (fig. 297); apophyse médiane subdivisée; apophyse tibiale rétrolatérale longue, effilée, non divisée (fig. 298) ..... ***insularis*** **(Banks)** (p. 199)

   Embolus s'élevant à la base du bulbe génital (fig. 301); apophyse médiane entière; apophyse tibiale rétrolatérale courte, divisée (fig. 302) ..... ***loricatus*** **(L. Koch)** (p. 201)

3(1). Scape médian gonflé dans la moitié basale (fig. 299); spermathèques allongées (fig. 300) ..... ***insularis*** **(Banks)** (p. 199)

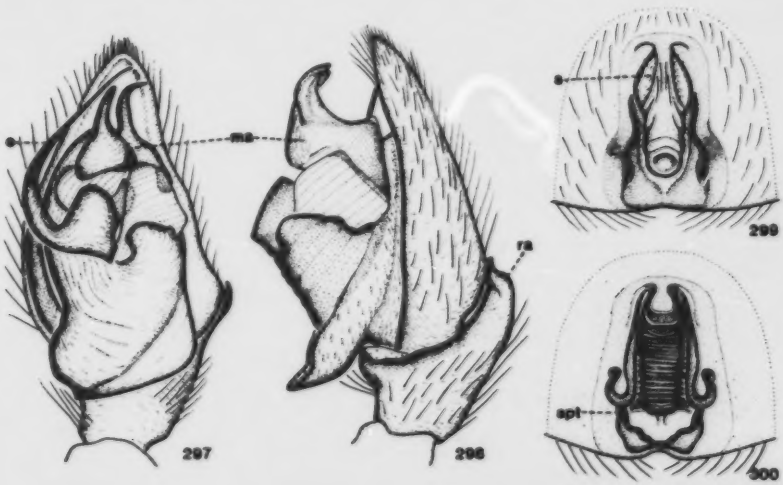
   Scape médian plutôt étroit dans la moitié basale (fig. 303); spermathèques enroulées (fig. 304) ..... ***loricatus*** **(L. Koch)** (p. 201)

Sosticus insularis (Banks)

Figs. 297–300; Map 49

Prosthesima insularis Banks, 1895*a*:78.
Sosticus insularis: Chamberlin 1922:160; Kaston 1948:364, figs. 1266–1268 (pl. 66); Platnick and Shadab 1976*b*:11, figs. 19–26.
Sosticus continentalis Chamberlin, 1922:160.
Sosticus projectus Fox, 1938:236, figs. 3, 5 (pl. 1).

Male. Total length 5.23 ± 0.63 mm; carapace 2.49 ± 0.20 mm long, 1.98 ± 0.17 mm wide; femur II 1.69 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.11, PME 0.10, PLE 0.11, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.06, PME–PLE 0.08, ALE–PLE 0.03; median ocular quadrangle 0.28 long, 0.26 wide at front, 0.26 wide at back. Palpus with retrolateral tibial apophysis moderately long, tapered, undivided (Fig. 298); embolus long, curved, slender, arising at midlength of genital bulb; median apophysis large, distal, divided (Fig. 297).



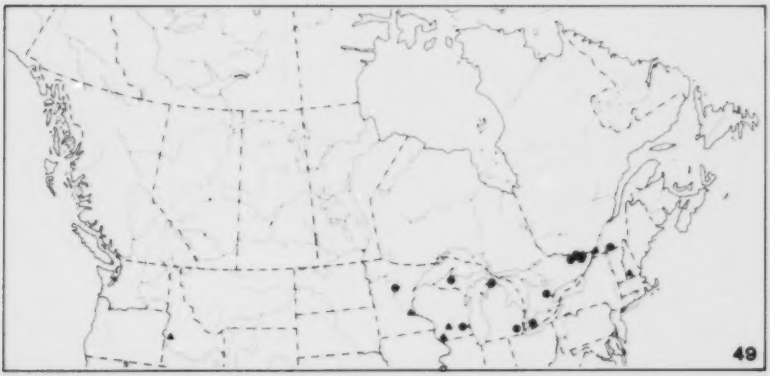
Figs. 297–300. Genitalia of *Sosticus insularis*. 297, 298, palpus of male; 297, ventral view; 298, retrolateral view; 299, 300, epigynum and spermathecae; 299, ventral view; 300, dorsal view. *e*, embolus; *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *s*, scape; *apt*, spermatheca.

Female. Total length 6.61 ± 0.87 mm; carapace 2.86 ± 0.45 mm long, 2.21 ± 0.35 mm wide; femur II 1.87 ± 0.27 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.12, PME 0.09, PLE 0.12, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.10, PME–PLE 0.11, ALE–PLE 0.05; median ocular quadrangle 0.35 long, 0.27 wide at front, 0.28 wide at back. Epigynum with large prominent median scape that is thickened in basal half (Fig. 299); spermathecae slender, elongate (Fig. 300).

Comments. Individuals of *S. insularis* are distinguished from those of the other Canadian species by the moderately long undivided retrolateral tibial apophysis, shorter embolus, and divided median apophysis of males, and by the basally thickened median scape and slender spermathecae of females.

Range. Minnesota to southern Quebec, south to eastern Texas and Georgia.

Biology. Mature males have been taken from May to August, mature females from April to August. Specimens have been collected in houses, under loose bark, and in a cedar swamp.



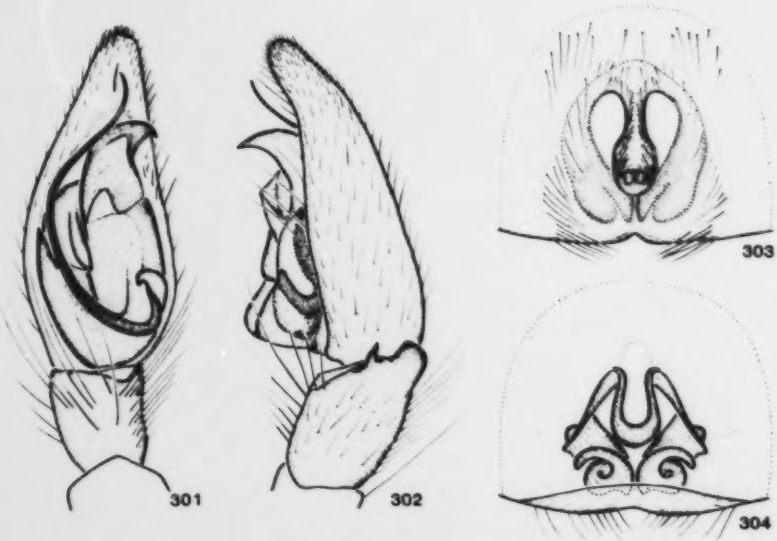
Map 49. Collection localities of *Sosticus insularis* (●) and *S. loricatus* (▲).

Sosticus loricatus (L. Koch)

Figs. 301–304; Map 49

Drassus loricatus L. Koch, 1866:131, figs. 82–84 (pl. 5).
Drassus navaricus Simon, 1878:159.
Drassus corcyreus Simon, 1884:340.
Sostogeus zygethus Chamberlin and Gertsch, 1940:1, figs. 1–4.
Sostogeus loricatus: Kaston 1976:45, figs. 36, 40, 41.
Sosticus loricatus: Platnick and Shadab 1976*b*:13, figs. 31–38; Grimm 1985:183, figs. 213*a*, *b*, 214*a*, *b*, 215, 216.

Male. Total length 6.66 ± 0.79 mm; carapace 3.17 ± 0.41 mm long, 2.40 ± 0.30 mm wide; femur II 2.20 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.10, PME 0.13, PLE 0.12, AME–AME 0.10, AME–ALE 0.02, PME–PME 0.04, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.36 long, 0.28 wide at front, 0.30 wide at back. Retrolateral tibial apophysis short, divided into tooth-like ventral process and flattened rounded dorsal process (Fig. 302); embolus long, curved, slender, arising at base of genital bulb; median apophysis large, undivided (Fig. 301).



Figs. 301–304. Genitalia of *Sosticus loricatus*. 301, 302, palpus of male; 301, ventral view; 302, retrolateral view; 303, 304, epigynum and spermathecae; 303, ventral view; 304, dorsal view.

Female. Total length 9.15 ± 1.29 mm; carapace 3.91 ± 0.47 mm long, 2.92 ± 0.32 mm wide; femur II 2.54 ± 0.34 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.14, PME 0.15, PLE 0.14, AME–AME 0.13, AME–ALE 0.04, PME–PME 0.06, PME–PLE 0.15, ALE–PLE 0.10; median ocular quadrangle 0.45 long, 0.32 wide at front, 0.36 wide at back. Epigynum with basally slender median scape (Fig. 303); spermathecae coiled (Fig. 304).

Comments. Male individuals of *S. loricatus* are distinguished from those of the other Canadian species in the genus by the longer embolus, undivided median apophysis, and short divided retrolateral tibial apophysis; female individuals are distinguished by the basally slender median scape and coiled spermathecae.

Range. Idaho, east to southern Quebec and New Hampshire, south to New Mexico and Long Island, New York; Europe, Asia.

Biology. Mature males and females have been taken in all or nearly all months. Specimens were collected almost exclusively in or on buildings.

Genus *Orodrassus* Chamberlin

Spiders of the genus *Orodrassus* are drably colored ground-dwelling hunters. They are found mainly in rather dry habitats such as western forests of aspen, spruce, fir, and pine, where they rest in crevices beneath stones, logs, or loose tree bark. One species, however, *O. canadensis* Platnick and Shadab, extends its range nearly to the East Coast and northward as far as the tree line (Platnick and Shadab 1975*b*).

Description. Total length 6.0–12.0 mm. Carapace elongate-ovoid, orange to dark reddish, low, narrowed toward front, widest between coxae II and III, and having erect slender setae. From front, anterior row of eyes somewhat procurved and posterior row of eyes procurved; anterior median eyes circular; anterior lateral and posterior lateral eyes ovoid; posterior median eyes irregularly triangular, usually largest; anterior median eyes separated from each other by somewhat more than their maximum width and from anterior lateral eyes by half their width or less; posterior median eyes separated from each other by more than their width and from posterior lateral eyes by 1.5 times their width; median ocular quadrangle approximately square. Chelicerae with 2–4 (usually 3) promarginal teeth, and 2 retromarginal teeth (usually enlarged in males). Sternum truncate at front, pointed behind. Leg formula 4123; segments light orange or brown; basitarsi lacking preening comb; distitarsi with dense claw tufts; basitarsi with sparse scopula; distitarsi with denser scopula; trochanters with shallow notches; macrosetae typically as

follows: femur I d1-1-0, p0-0-1; II d1-1-0, p0-1-1; III d1-1-0, p0-1-1, r0-1-1; IV d1-1-0, r0-0-1; tibiae I, II v0-1-0; III p1-0-1, v1-1-2, r1-0-1; IV p1-0-1, v1-2-2, r1-0-1; basitarsi I, II v2-0-0; III p2-0-2, v2-0-2, r1-0-2; IV p2-0-2, v2-0-2, r2-0-2. Abdomen light gray, with cluster of erect curved setae at anterior end. Male palpus (Figs. 305, 309, 313) with retrolateral tibial apophysis usually short, bifid, rarely flattened, and extended laterally; embolus thick, largely concealed in ventral view by terminal apophysis; terminal apophysis large, pointed; median apophysis usually spike-like. Epigynum (Figs. 307, 308, 311, 312, 315, 316) with prominent median septum and usually with indistinct anterior and lateral margins; spermathecae slender, extending anteriorly then mesally, expanding mesally, and arising at posterior margin of epigynum.

Comments. Members of the genus *Orodrassus* are distinguished from those of other Canadian gnaphosids except *Haplodrassus* by the following combination of characters: legs lacking preening comb and lacking deep trochanteral notches, cheliceral retromargin with 2 teeth, tibia IV lacking dorsal macrosetae, and posterior row of eyes (seen from front) only somewhat procurved. Representatives of *Orodrassus* are distinguished from those of *Haplodrassus* by the following combination of characters: posterior median eyes separated by more than their maximum width; retrolateral tibial apophysis short, either bifid or flattened, and laterally extended; and epigynum with prominent median septum.

The genus *Orodrassus* is represented both in North America (where four species occur) (Platnick and Shadab 1975*b*) and Asia (northern China, Mongolia, and eastern parts of the USSR, where its species have sometimes been placed in *Parasyrisca* Schenkel). Three species are represented in Canada.

Key to species of *Orodrassus*

1. Male 2

   Female 4

2(1). Tibiae I and II each with two pairs of ventral macrosetae. Retrolateral tibial apophysis flattened and laterally extended (Figs. 305, 306) .... ***orites* Chamberlin & Gertsch** (p. 205)

   Tibiae I and II with at most a single ventral macroseta. Retrolateral tibial apophysis bifid (Figs. 310, 314) 3

3(2). Terminal apophysis abruptly narrowed near tip (Fig. 309) .... ***coloradensis* (Emerton)** (p. 206)

   Terminal apophysis slender, with tip curved retrolaterally (Fig. 313) ..... ***canadensis* Platnick & Shadab** (p. 208)

4(1). Epigynum with narrow transverse hood (Fig. 307) ..... ***orites* Chamberlin & Gertsch** (p. 205)

Epigynum without hood (Figs. 311, 315) 5

5(4). Median septum pointed posteriorly (Fig. 311) ..... ***coloradensis* (Emerton)** (p. 206)

Median septum blunt and indented posteriorly (Fig. 315) ..... ***canadensis* Platnick & Shadab** (p. 208)

Clé des espèces d'*Orodrassus*

1. Mâle 2

Femelle 4

2(1). Tibias I et II pourvus chacun de deux paires de macrosoies ventrales. Apophyse tibiale rétrolatérale plutôt plate et prolongée latéralement (fig. 305, 306) ..... ***orites* Chamberlin & Gertsch** (p. 205)

Tibias I et II pourvus d'au plus une macrosoie ventrale. Apophyse tibiale rétrolatérale bifide (fig. 310, 314) 3

3(2). Apophyse terminale qui devient brusquement plutôt étroite près de l'extrémité (fig. 309) .. ***coloradensis* (Emerton)** (p. 206)

Apophyse terminale effilée, dont l'extrémité est courbée rétrolatéralement (fig. 313) ..... ***canadensis* Platnick & Shadab** (p. 208)

4(1). Épigyne à casque transverse étroit (fig. 307) ..... ***orites* Chamberlin & Gertsch** (p. 205)

Épigyne sans casque (fig. 311, 315) 5

5(4). Septum médian pointu postérieurement (fig. 311) ..... ***coloradensis* (Emerton)** (p. 206)

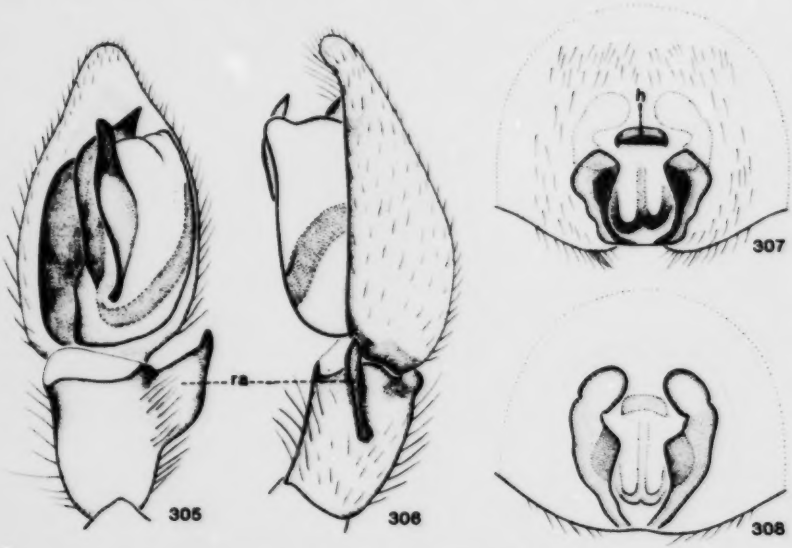
Septum médian émoussé et dentelé postérieurement (fig. 315) ..... ***canadensis* Platnick & Shadab** (p. 208)

Orodrassus orites Chamberlin & Gertsch

Figs. 305–308; Map 50

Orodrassus orites Chamberlin and Gertsch, 1940:10, fig. 7; Platnick and Shadab 1975*b*:38, figs. 85, 86, 103–106.

Male. Total length 5.98 mm; carapace 2.21 mm long, 1.79 mm wide; femur II 1.76 mm long (one specimen measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.11, PME 0.09, PLE 0.11, AME–AME 0.13, AME–ALE 0.03, PME–PME 0.13, PME–PLE 0.14, ALE–PLE 0.07; median ocular quadrangle 0.31 long, 0.30 wide at front, 0.31 wide at back. Palpus with retrolateral tibial apophysis flattened and extended retrolaterally (Figs. 305, 306); terminal apophysis long, slender, pointed, lying parallel to long axis of genital bulb (Fig. 305).



Figs. 305–308. Genitalia of *Orodrassus orites*. 305, 306, palpus of male; 305, ventral view; 306, retrolateral view; 307, 308, epigynum and spermathecae; 307, ventral view; 308, dorsal view. *h*, hood; *ra*, retrolateral tibial apophysis.

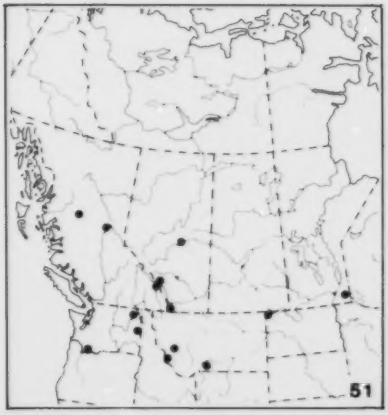
Female. Total length 7.34 ± 0.39 mm; carapace 2.73 ± 0.13 mm long, 2.25 ± 0.12 mm wide; femur II 2.12 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.12, PME 0.11, PLE 0.11, AME–AME 0.15, AME–ALE 0.04, PME–PME 0.15, PME–PLE 0.17, ALE–PLE 0.11; median ocular quadrangle 0.36 long, 0.36 wide at front, 0.37 wide at back. Epigynum with

median septum having dark rounded margins and with hood (Fig. 307); spermathecae long, rather thick, with angular mesal prominence near midlength, bulbous at anterior end (Fig. 308).

Comments. Individuals of *O. orites* are distinguished from those of the other Canadian species in the genus by the flattened laterally extended retrolateral tibial apophysis, by the presence of two pairs of ventral macrosetae on tibiae I and II, and by the presence of an epigynal hood.

Range. Southern British Columbia and western Washington.

Biology. The single mature male was taken on 11 August; mature females have been taken from mid July to mid September. No habitat data are available.

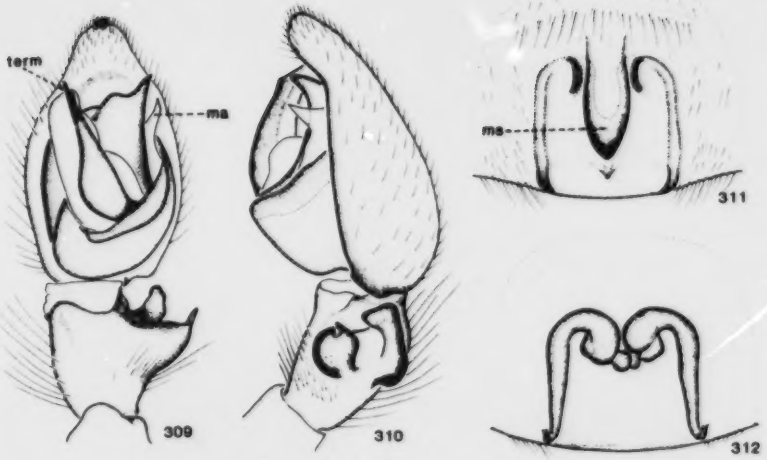


Maps 50, 51. Collection localities of *Orodrassus* spp. 50, *O. orites*; 51, *O. coloradensis*.

Orodrassus coloradensis (Emerton)

Figs. 309–312; Map 51

Drassus coloradensis Emerton, 1877:528, fig. 19.
Teminius continentalis Keyserling, 1887:423, fig. 2.
Drassodes melius Chamberlin, 1919*b*:246, figs. 4, 5 (pl. 16).
Orodrassus coloradensis: Chamberlin 1922:163; Platnick and Shadab 1975*b*:32, figs. 75–84.



Figs. 309–312 Genitalia of *Orodrassus coloradensis*. 309, 310, palpus of male; 309, ventral view; 310, retrolateral view; 311, 312, epigynum and spermathecae; 311, ventral view; 312, dorsal view. *ma*, median apophysis; *ms*, median septum; *term*, terminal apophysis.

Male. Total length 8.03 ± 0.53 mm; carapace 3.50 ± 0.26 mm long, 2.72 ± 0.20 mm wide; femur II 2.73 ± 0.22 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.13, ALE 0.15, PME 0.14, PLE 0.16, AME–AME 0.17, AME–ALE 0.05, PME–PME 0.15, PME–PLE 0.22, ALE–PLE 0.11; median ocular quadrangle 0.44 long, 0.43 wide at front, 0.42 wide at back. Palpus with retrolateral tibial apophysis bifid (Fig. 310); terminal apophysis broad basally, abruptly narrowed to slender tip (Fig. 309); median apophysis slender, pointed, pale (Figs. 309, 310).

Female. Total length 8.96 ± 0.89 mm; carapace 3.89 ± 0.25 mm long, 3.10 ± 0.23 mm wide; femur II 2.83 ± 0.22 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.17, ALE 0.18, PME 0.16, PLE 0.17, AME–AME 0.18, AME–ALE 0.09, PME–PME 0.23, PME–PLE 0.28, ALE–PLE 0.19; median ocular quadrangle 0.54 long, 0.52 wide at front, 0.55 wide at back. Epigynum without hood, and with median septum long, convex at sides, pointed at posterior end (Fig. 311); spermathecae long, slender, strongly bent mesally and posteriorly at anterior end (Fig. 312).

Comments. Individuals of *O. coloradensis* are distinguished from those of the other Canadian species in the genus by the abruptly narrowed terminal apophysis and by the long, convex, posteriorly pointed median septum.

Range. British Columbia to Manitoba, south to California and Arizona.

Biology. Mature males have been taken from late May to late September, mature females from late March to mid November. Specimens have been collected under stones, logs, and fallen bark in aspen, spruce, fir, and pine forests. Elevations up to 4150 m have been recorded.

Orodrassus canadensis Platnick & Shadab

Figs. 313–316; Map 52

Orodrassus canadensis Platnick and Shadab, 1975*b*:37, figs. 95–102.

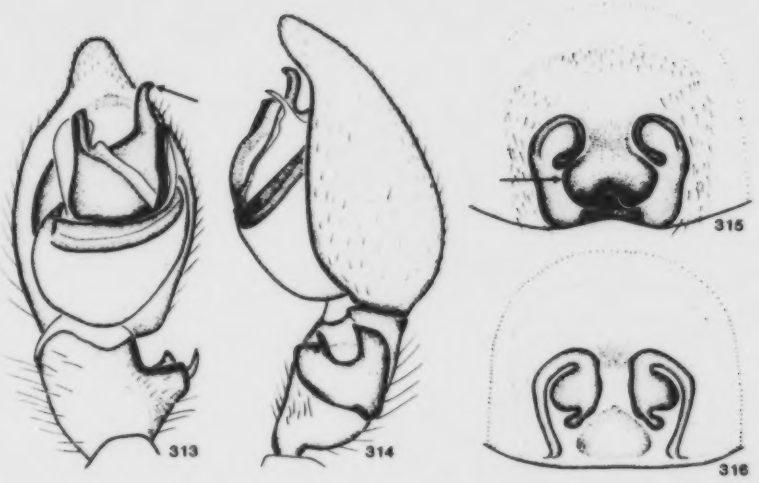
Male. Total length 7.72 ± 0.40 mm; carapace 3.48 ± 0.35 mm long, 2.75 ± 0.25 mm wide; femur II 2.91 ± 0.33 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.16, ALE 0.14, PME 0.14, PLE 0.15, AME–AME 0.18, AME–ALE 0.08, PME–PME 0.18, PME–PLE 0.23, ALE–PLE 0.12; median ocular quadrangle 0.47 long, 0.50 wide at front, 0.46 wide at back. Retrolateral tibial apophysis short, bifid (Fig. 314); terminal apophysis long, slender, with tip curved retrolaterally (Fig. 313); median apophysis slender, pointed, pale.

Female. Total length 9.40 ± 0.78 mm; carapace 3.55 ± 0.18 mm long, 2.81 ± 0.14 mm wide; femur II 2.59 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.17, ALE 0.14, PME 0.14, PLE 0.14, AME–AME 0.18, AME–ALE 0.08, PME–PME 0.20, PME–PLE 0.25, ALE–PLE 0.11; median ocular quadrangle 0.47 long, 0.52 wide at front, 0.48 wide at back. Epigynum with median septum large, convex, posteriorly indented (Fig. 315); spermathecae long, slender, arched mesally and posteriorly, expanded at tips (Fig. 316).

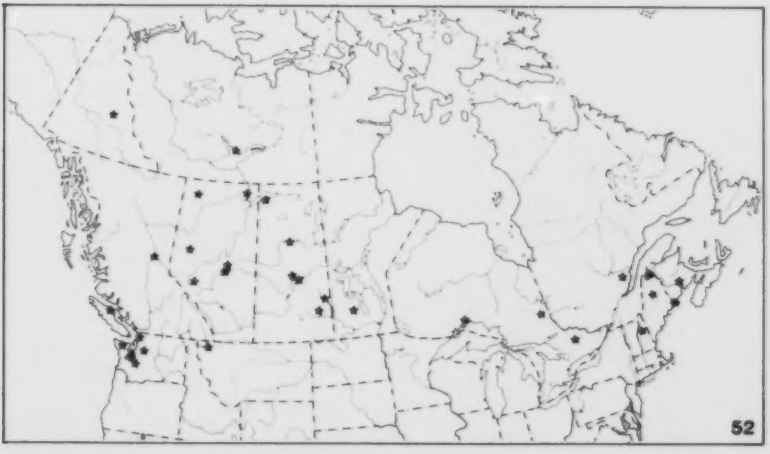
Comments. Individuals of *O. canadensis* are distinguished from those of the other Canadian species in the genus by the slender curved terminal apophysis and by the large indented median septum.

Range. Yukon Territory to New Brunswick, south to Washington and South Dakota.

Biology. Mature males have been taken from mid July to mid September, mature females from mid April to mid September. Specimens have been collected under loose bark, in cabins, and by pitfall traps in coniferous forests.



Figs. 313–316. Genitalia of *Orodrassus canadensis*. 313, 314, palpus of male; 313, ventral view; 314, retrolateral view; 315, 316, epigynum and spermathecae; 315, ventral view; 316, dorsal view.



Map 52. Collection localities of *Orodrassus canadensis*.

Genus *Haplodrassus* Chamberlin

Spiders of the genus *Haplodrassus*, like most gnaphosids, are medium-sized inhabitants of crevices in leaf litter or under stones and loose bark. They occupy mainly dry open terrain such as heaths, stony ground, or alpine meadows, ranging from sea level to more than 4000 m elevation. Drably and almost uniformly colored, they are rarely noticed unless disturbed or trapped, and it is mainly the external genitalia that distinguish either the species or the genus that includes them.

One species, *H. signifer* (C.L. Koch), is widespread in both North America and Eurasia. On both sides of the Atlantic, representatives are found in the typical habitats mentioned above (Platnick and Shadab 1975*b*, Grimm 1985). A second North American species, *H. hiemalis* (Emerton), has recently been reported from USSR (Ovtsharenko and Marusik 1988). For each of two other North American species—*H. eunis* Chamberlin, *H. bicornis* (Emerton)—there exists a close Eurasian relative—respectively *H. soerenseni* (Strand) and *H. umbratilis* (L. Koch)—and in these pairs also the habitats correspond well.

Description. Total length 3.0–10.0 mm. Carapace orange posteriorly and dark reddish anteriorly, elongate-ovoid, low, narrowed toward front, widest between coxae II and III, and having erect slender dark setae. From front, anterior row of eyes somewhat procurved and posterior row procurved; anterior eyes circular; posterior median eyes irregularly triangular and usually largest; posterior lateral eyes ovoid; anterior median eyes separated from each other by somewhat more than their maximum width and from anterior lateral eyes by somewhat less than their width; posterior median eyes usually separated from each other by less than half their width and from posterior laterals by half their maximum width or more; anterior lateral and posterior lateral eyes separated by their width or less; median ocular quadrangle approximately square. Chelicerae with 2 or 3 promarginal teeth and 2 retromarginal teeth. Palp-coxal lobes with serrula. Sternum truncate at front, pointed behind. Leg formula 4123; segments light orange or brown, those more distal becoming darker; basitarsi lacking preening comb; distitarsi with sparse scopulae and dense claw tufts; trochanters with shallow notches; macrosetae typically as follows: femora I, II d1-1-0, p0-0-1; III d1-1-0, p0-0-1, r0-0-1; IV d1-1-0, r0-0-1; tibiae III p1-1-1, v2-2-2, r0-1-1; IV p1-0-1, v2-2-2, r1-1-1; basitarsi I, II v2-0-0; III p0-2-2, v2-0-2, r0-1-2; IV p0-2-2, v2-1-2, r0-2-2. Abdomen light gray, sometimes with dark chevrons, and with cluster of erect curved setae at anterior end. Male palpus (Figs. 317–319, 322, 323) with retrolateral tibial apophysis, with embolus, with terminal apophysis, and with median apophysis; retrolateral tibial apophysis flattened, usually distally widened, dorsally situated; embolus thick, dorsoapical, often largely concealed by terminal apophysis in ventral view; terminal apophysis large; median apophysis small, curved, retrolaterally situated. Epigynum (Figs. 320, 321, 324, 325) sometimes

with broad hood-like anterior epigynal margin, usually with paired lateral sclerites, sometimes with wavy transverse ridges anterior to lateral sclerites; spermathecae usually elongate and sac-like.

Comments. Members of the genus *Haplodrassus* are distinguished from those of all other Canadian gnaphosid genera except *Orodrassus* by the following combination of characters: preening comb absent, leg trochanters with only shallow notches, cheliceral retromargin with 2 teeth, tibia IV lacking dorsal macrosetae, and posterior row of eyes only somewhat procurved when viewed from front. Representatives of *Haplodrassus* are distinguished from those of *Orodrassus* by the following combination of characters: posterior median eyes separated by less than their maximum width, retrolateral tibial apophysis flattened and often situated dorsally, and epigynum with paired lateral sclerites but lacking median septum.

The genus *Haplodrassus* comprises approximately 50 species, of which nine occur in North America (Platnick and Shadab 1975*b*). Five species are represented in Canada.

Key to species of *Haplodrassus*

1. Male 2
   Female 6

2(1). Retrolateral tibial apophysis situated retrolaterally (Figs. 318, 319) ..... ***chamberlini* Platnick & Shadab** (p. 213)
   Retrolateral tibial apophysis situated more dorsally (Figs. 323, 327, 331) 3

3(2). Terminal apophysis undivided at tip and having curved ridge along distal half (Fig. 322) ..... ***signifer* (C.L. Koch)** (p. 215)
   Terminal apophysis divided at tip and lacking ridge along distal half (Figs. 326, 330, 334) 4

4(3). Retrolateral tibial apophysis tapered toward tip (Fig. 327) ..... ***hiemalis* (Emerton)** (p. 217)
   Retrolateral tibial apophysis broadened toward tip (Figs. 331, 335) 5

5(4). Terminal apophysis broad, with broad excavation at tip (Fig. 330) ..... ***bicornis* (Emerton)** (p. 220)
   Terminal apophysis more slender, with narrow excavation at tip (Fig. 334) ..... ***cunis* Chamberlin** (p. 222)

6(1). Epigynum with lateral sclerites free at anterior end (Fig. 332) ..... ***bicornis* (Emerton)** (p. 220)

Epigynum with lateral sclerites not free at anterior end (Figs. 324, 328, 336) 7

7(6). Lateral sclerites each with mesal prominence near anterior end (Fig. 324) ..... ***signifer*** **(C.L. Koch)** (p. 215)

Lateral sclerites lacking mesal prominence 8

8(7). Epigynum notched anteriorly at midline (Figs. 328, 336) 9

Epigynum not notched anteriorly (Fig. 320) ..... ***chamberlini*** **Platnick & Shadab** (p. 213)

9(8). Lateral sclerites approximately horseshoe-shaped; epigynum anterior to lateral sclerites traversed by 4 wavy ridges (Fig. 328) ..... ***hiemalis*** **(Emerton)** (p. 217)

Lateral sclerites irregular in shape; epigynum anterior to lateral sclerites usually smooth (Fig. 336) ..... ***eunis*** **Chamberlin** (p. 222)

Clé des espèces d'*Haplodrassus*

1. Mâle 2

Femelle 6

2(1). Apophyse tibiale rétrolatérale située rétrolatéralement (fig. 318, 319) ..... ***chamberlini*** **Platnick & Shadab** (p. 213)

Apophyse tibiale rétrolatérale située plus dorsalement (fig. 323, 327, 331) 3

3(2). Apophyse terminale non divisée à l'extrémité et munie d'une carène courbée le long de la moitié distale (fig. 322) ..... ***signifer*** **(C.L. Koch)** (p. 215)

Apophyse terminale divisée à l'extrémité et dépourvue de carène le long de la moitié distale (fig. 326, 330, 334) 4

4(3). Apophyse tibiale rétrolatérale pointue vers l'extrémité (fig. 327) ..... ***hiemalis*** **(Emerton)** (p. 217)

Apophyse tibiale rétrolatérale plutôt large vers l'extrémité (fig. 331, 335) 5

5(4). Apophyse terminale large, pourvue d'une large cavité à l'extrémité (fig. 330) ..... ***bicornis*** **(Emerton)** (p. 220)

Apophyse terminale plus effilée, pourvue d'une étroite cavité à l'extrémité (fig. 334) ..... ***eunis*** **Chamberlin** (p. 222)

6(1). Épigyne pourvue de sclérites latéraux libres à l'extrémité antérieure (fig. 332) ..... ***bicornis*** **(Emerton)** (p. 220)

Épigyne pourvue de sclérites latéraux non libres à l'extrémité antérieure (fig. 324, 328, 336) 7

7(6). Sclérites latéraux pourvus chacun d'une proéminence mésale près de l'extrémité antérieure (fig. 324) .... ***signifer*** **(C.L. Koch)** (p. 215)

Sclérites latéraux dépourvus de proéminence mésale 8

8(7). Épigyne encochée antérieurement à la ligne médiane (fig. 328, 336) 9

Épigyne non encochée antérieurement (fig. 320) .... ***chamberlini*** **Platnick & Shadab** (p. 213)

9(8). Sclérites latéraux à peu près en forme de fer à cheval; épigyne traversée par quatre carènes ondulées antérieurement aux sclérites latéraux (fig. 328) .... ***hiemalis*** **(Emerton)** (p. 217)

Sclérites latéraux de forme irrégulière; épigyne généralement lisse antérieurement aux sclérites latéraux (fig. 336) .... ***eunis*** **Chamberlin** (p. 222)

Haplodrassus chamberlini Platnick & Shadab

Figs. 317–321; Map 53

Haplodrassus chamberlini Platnick and Shadab, 1975*b*:27, figs. 63–70.

Male. Total length 4.77 ± 0.80 mm; carapace 2.30 ± 0.40 mm long, 1.76 ± 0.27 mm wide; femur II 1.49 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.10, PME 0.13, PLE 0.09, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.03, PME–PLE 0.08, ALE–PLE 0.07; median ocular quadrangle 0.28 long, 0.23 wide at front, 0.29 wide at back. Palpus with tibial apophysis situated retrolaterally, rather narrow throughout its length, nearly truncate at tip (Figs. 318, 319); terminal apophysis broad, somewhat sinuous, more slender and blunt at tip, and with ridge along distal part (Fig. 317); median apophysis short, slender, with hooked tip (Fig. 317).

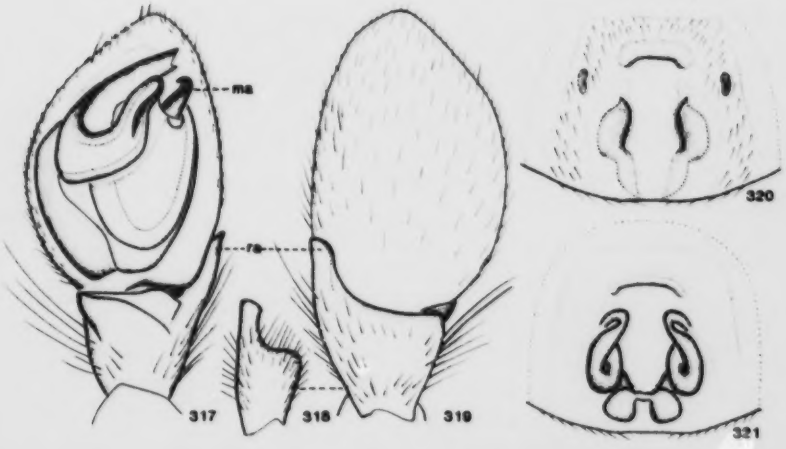
Female. Total length 7.17 ± 1.42 mm; carapace 2.92 ± 0.42 mm long, 2.25 ± 0.35 mm wide; femur II 1.75 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.11, PME 0.13, PLE 0.11, AME–AME 0.10, AME–ALE 0.03, PME–PME 0.02, PME–PLE 0.12, ALE–PLE 0.08; median ocular quadrangle 0.32 long, 0.28 wide at front, 0.28 wide at back. Epigynum with

lateral sclerites flat and lacking mesal prominences, without notch anteriorly at midline, and with hood-like anterior epigynal margin (Fig. 320); spermathecae elongate, twisted (Fig. 321).

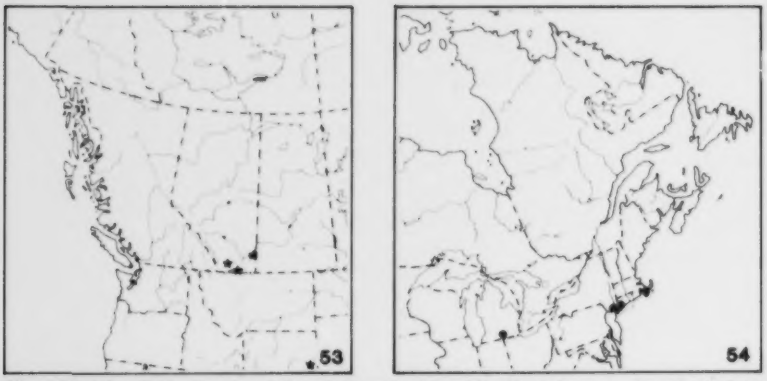
Comments. Male individuals of *H. chamberlini* are distinguished from those of the other Canadian species of *Haplodrassus* by the uniformly wide and retrolaterally situated tibial apophysis; female individuals are distinguished by the lateral sclerites, which are flat and lack mesal prominences, and by the epigynum, which lacks a notch anteriorly at the midline.

Range. Southern Alberta, south to northern Mexico, east to Kansas and northwestern Texas.

Biology. Mature males have been taken from late January to early July, mature females from late March to early September. Specimens have been collected under surface debris in grassland, in buildings, and in association with yucca, ephedra, allthorn, mesquite, pinyon pine, juniper, and nolina.



Figs. 317–321. Genitalia of *Haplodrassus chamberlini*. 317-319, palpus of male; 317, ventral view; 318, lateral view; 319, dorsal view; 320, 321, epigynum and spermathecae; 320, ventral view; 321, dorsal view. *ma*, median apophysis; *ra*, retrolateral tibial apophysis.



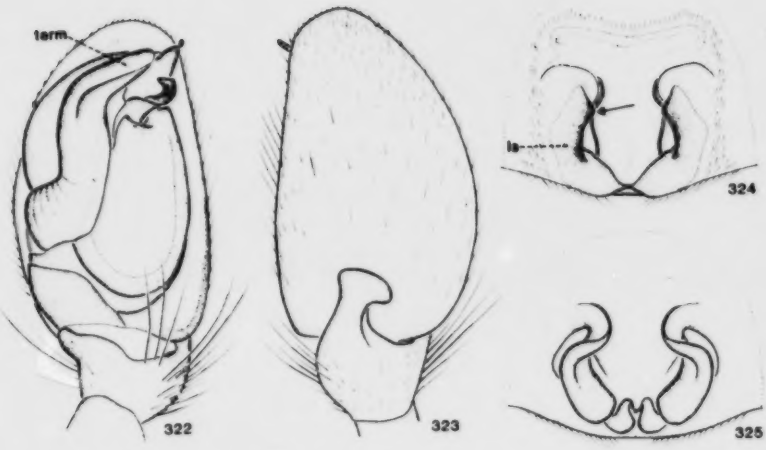
Maps 53, 54. Collection localities of *Gnaphosidae*. 53, *Haplodrassus chamberlini*. 54, *Litopyllus temporarius*.

Haplodrassus signifer (C.L. Koch)

Figs. 322–325; Map 55

Drassus signifer C.L. Koch, 1839:31, fig. 452.
Drassus troglodytes C.L. Koch, 1839:35, figs. 455, 456.
Drassus clavator O. Pickard-Cambridge, 1860:171.
Drassus robustus Emerton, 1890:179, figs. 8, 8*a*–8*c* (pl. 4).
Drassus mysticus O. Pickard-Cambridge, 1894:104.
Teminius nigriceps Banks, 1895*b*:421.
Drassus placidus Banks, 1896*a*:63.
Drassodes ferrum-equinum F.O. Pickard-Cambridge, 1899:60, fig. 12 (pl. 4).
Prosthesima decepta Banks, 1900:531.
Zelotes pacifica Banks, 1904*a*:336, fig. 15 (pl. 39).
Haplodrassus dystactus Chamberlin and Gertsch, 1940:8, figs. 6, 9, 10.
Haplodrassus signifer: Chamberlin 1922:163; Kaston 1948:350, figs. 1170–1172 (pl. 60), 1186 (pl. 61); Platnick and Shadab 1975*b*:11, figs. 9–22; Grimm 1985:146, figs. 146, 147, 170, 171.

Male. Total length 6.51 ± 0.47 mm; carapace 2.90 ± 0.23 mm long, 2.26 ± 0.17 mm wide; femur II 1.92 ± 0.16 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.11, PME 0.18, PLE 0.10, AME–AME 0.12, AME–ALE 0.08, PME–PME 0.05, PME–PLE 0.18, ALE–PLE 0.13; median ocular quadrangle 0.42 long, 0.32 wide at front, 0.41 wide at back. Retrolateral tibial apophysis situated dorsally, broadened at tip (Fig. 323); terminal apophysis long, broad, blunt and undivided at tip, and having ridge along distal part (Fig. 322); median apophysis small, slender, curved (Fig. 322).



Figs. 322–325. Genitalia of *Haplodrassus signifer*. 322, 323, palpus of male; 322, ventral view; 323, dorsal view; 324, 325, epigynum and spermathecae; 324, ventral view; 325, dorsal view. *ls*, lateral sclerite; *term*, terminal apophysis.

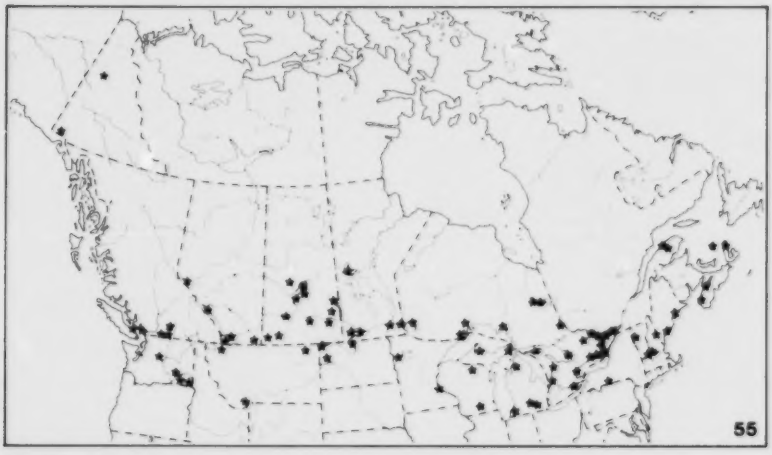
Female. Total length 7.18 ± 0.89 mm; carapace 2.84 ± 0.30 mm long, 2.20 ± 0.25 mm wide; femur II 1.76 ± 0.18 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.12, ALE 0.10, PME 0.14, PLE 0.10, AME–AME 0.12, AME–ALE 0.04, PME–PME 0.05, PME–PLE 0.18, ALE–PLE 0.13; median ocular quadrangle 0.39 long, 0.35 wide at front, 0.34 wide at back. Epigynum with lateral sclerites broad, somewhat concave, each with small mesal prominence near anterior end (Fig. 324); spermathecae rather broad, elongate, sinuous (Fig. 325).

Comments. Individuals of *H. signifer* are distinguished from those of the other Canadian species of *Haplodrassus* by the following combination of characters: retrolateral tibial apophysis situated dorsally, terminal apophysis undivided at tip and having a curved ridge along its distal half, and lateral sclerites of epigynum with small mesal prominences near their anterior ends.

Range. Yukon Territory to Nova Scotia, south to Mexico and Florida; Greenland, Europe, Asia.

Biology. Mature males and females have been taken year round but primarily in the summer months in Canada. Specimens have been collected under stones, logs, and ground debris; in grassland and wheat fields; on salt marshes; in deciduous and coniferous forests; and in

association with ephedra, sagebrush, and sphagnum. A few specimens were found in houses or in ant nests. Elevations from sea level to 4600 m are recorded.



Map 55. Collection localities of *Haplodrassus signifer*.

Haplodrassus hiemalis (Emerton)

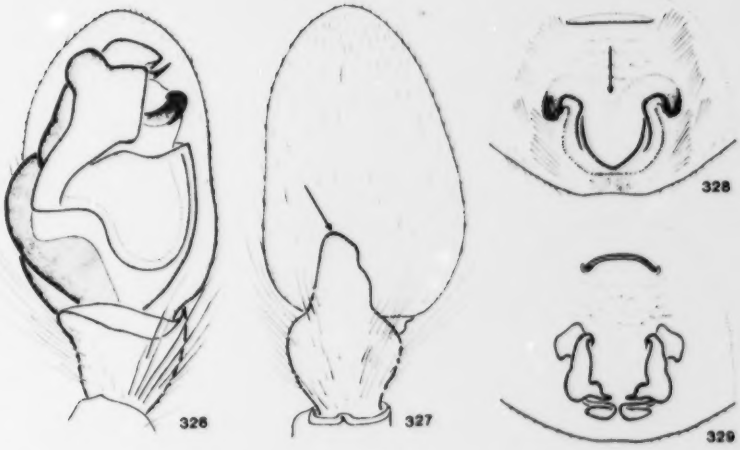
Figs. 326–329; Map 56

Drassus hiemalis Emerton, 1909:218, figs. 1, 1*a*–1*d* (pl. 9).

Haplodrassus hiemalis: Chamberlin 1922:161; Kaston 1948:350, figs. 1173–1175 (pl. 60), 1187 (pl. 61); Platnick and Shadab 1975*b*:7, figs. 1–8.

Haplodrassus altanus Chamberlin, 1933:5, figs. 8, 9.

Male. Total length 5.92 ± 0.33 mm; carapace 2.60 ± 0.12 mm long, 2.07 ± 0.09 mm wide; femur II 1.74 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.12, PME 0.12, PLE 0.09, AME–AME 0.12, AME–ALE 0.04, PME–PME 0.05, PME–PLE 0.17, ALE–PLE 0.07; median ocular quadrangle 0.33 long, 0.31 wide at front, 0.29 wide at back. Palpus with retrolateral tibial apophysis situated dorsally, flattened, and tapered to rounded tip (Fig. 327); terminal apophysis slender basally, expanded distally, shallowly divided at tip (Fig. 326); median apophysis elongate, slender, curved (Fig. 326).



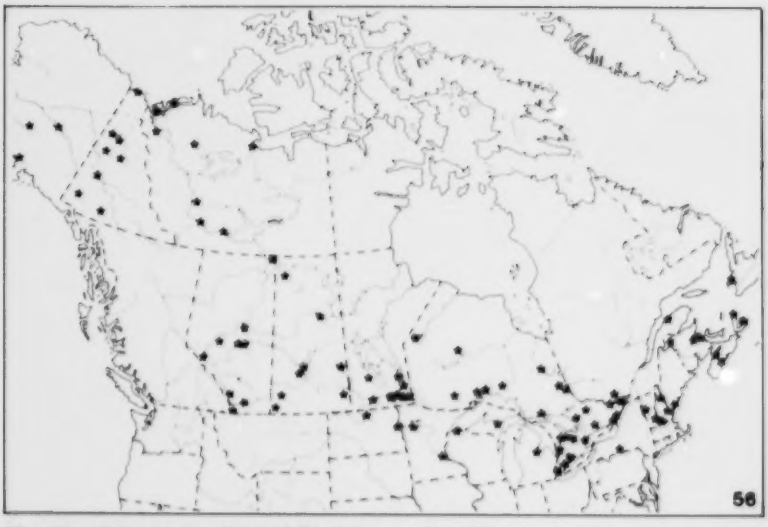
Figs. 326–329. Genitalia of *Haplodrassus hiemalis*. 326, 327, palpus of male; 326, ventral view; 327, dorsal view; 328, 329, epigynum and spermathecae; 328, ventral view; 329, dorsal view.

Female. Total length 6.49 ± 0.64 mm; carapace 2.70 ± 0.29 mm long, 2.10 ± 0.19 mm wide; femur II 1.65 ± 0.15 long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.12, PME 0.14, PLE 0.11, AME–AME 0.18, AME–ALE 0.08, PME–PME 0.10, PME–PLE 0.21, ALE–PLE 0.10; median ocular quadrangle 0.44 long, 0.40 wide at front, 0.38 wide at back. Epigynum notched anteriorly, with thick anterior margin, with lateral sclerites horseshoe-shaped, and with series of 4 wavy transverse ridges in space anterior to lateral sclerites (Fig. 328); spermathecae sac-like (Fig. 329).

Comments. Individuals of *H. hiemalis* are distinguished from those of the other Canadian species of *Haplodrassus* by the following combination of characters: retrolateral tibial apophysis dorsally situated and tapered to a rounded tip; terminal apophysis distally expanded and shallowly divided at tip; and epigynum with notch anteriorly, with series of 4 wavy transverse ridges, and with horseshoe-shaped lateral sclerites.

Range. Alaska to Newfoundland, south to Colorado and New Jersey; USSR (Ovtsharenko and Marusik 1988). The recording of Tununek Point, Baffin Island, by Platnick and Shadab (1975*b*) was in error for Tununuk Point at the mouth of the Mackenzie River.

Biology. Mature males have been taken from mid April to late July, mature females year round. Specimens have been collected in grassland; in litter in deciduous and coniferous forests, swamps, and marshes; and on beaches, at elevations from sea level to 4650 m.



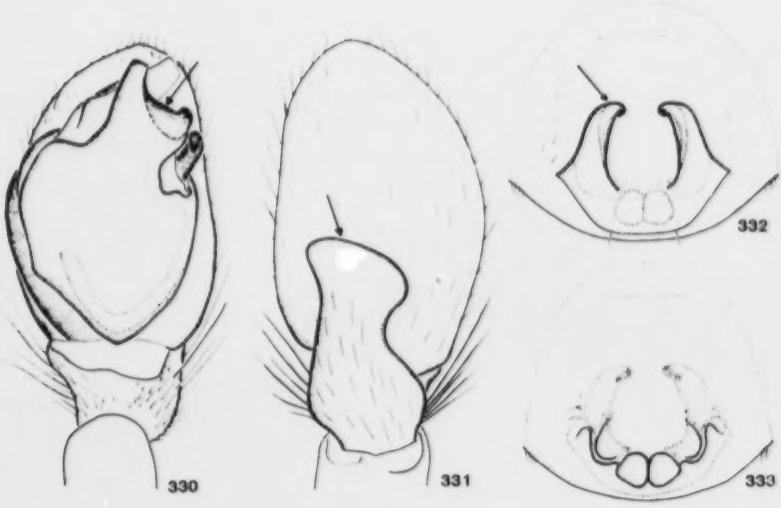
Map 56. Collection localities of *Haplodrassus hiemalis*.

Haplodrassus bicornis (Emerton)

Figs. 330–333; Map 57

Drassus bicornis Emerton, 1909:218, figs. 2, 2*a*, 2*b* (pl. 9).
Haplodrassus bicornis: Chamberlin 1922:161; Platnick and Shadab 1975*b*:16 figs. 23–30.
Haplodrassus admes Chamberlin, 1922:162.
Haplodrassus uncifer Chamberlin, 1936*a*:18, figs. 17–19.

Male. Total length 4.11 ± 0.46 mm; carapace 1.81 ± 0.24 mm long, 1.42 ± 0.20 mm wide; femur II 1.05 ± 0.16 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.12, PLE 0.09, AME–AME 0.08, AME–ALE 0.04, PME–PME 0.02, PME–PLE 0.09, ALE–PLE 0.04; median ocular quadrangle 0.24 long, 0.23 wide at front, 0.25 wide at back. Palpus with retrolateral tibial apophysis dorsally situated, flattened, expanded distally (Fig. 331); terminal apophysis broad distally, divided at tip, and arising broadly near midline of genital bulb (Fig. 330); median apophysis slender, hooked (Fig. 330).



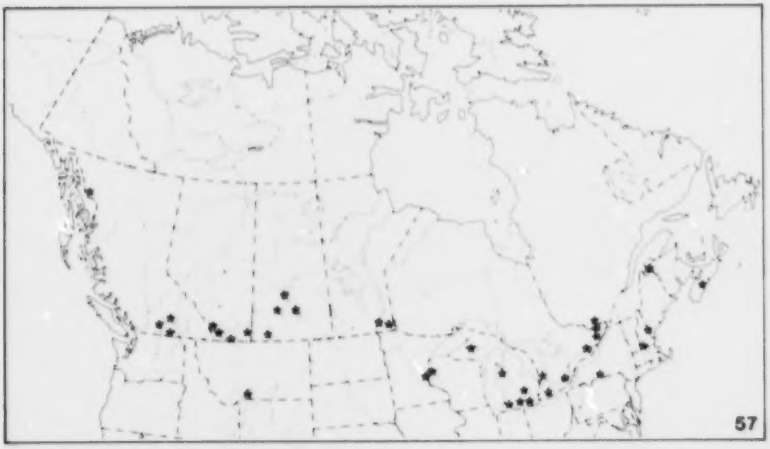
Figs. 330–333. Genitalia of *Haplodrassus bicornis*. 330, 331, palpus of male; 330, ventral view; 331, dorsal view; 332, 333, epigynum and spermathecae; 332, ventral view; 333, dorsal view.

Female. Total length 5.21 ± 1.22 mm; carapace 2.03 ± 0.35 mm long, 1.52 ± 0.31 mm wide; femur II 1.15 ± 0.19 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.12, PLE 0.09, AME–AME 0.08, AME–ALE 0.04, PME–PME 0.03, PME–PLE 0.09, ALE–PLE 0.05; median ocular quadrangle 0.24 long, 0.23 wide at front, 0.27 wide at back. Epigynum with lateral arms free anteriorly, angular laterally (Fig. 332); spermathecae slender, sinuous (Fig. 333).

Comments. Male individuals of *H. bicornis* are distinguished from those of the other Canadian species of *Haplodrassus* by the short broad terminal apophysis of the palpus; female individuals are distinguished by the anteriorly free lateral sclerites of the epigynum.

Range. British Columbia to Nova Scotia, south to Arizona and Virginia.

Biology. Mature males have been taken from mid April to late July, mature females from early May to late August. Specimens have been collected under stones and logs in meadows, deciduous forests, and pine forests; and in quarries, at elevations from sea level to 3150 m.



Map 57. Collection localities of *Haplodrassus bicornis*.

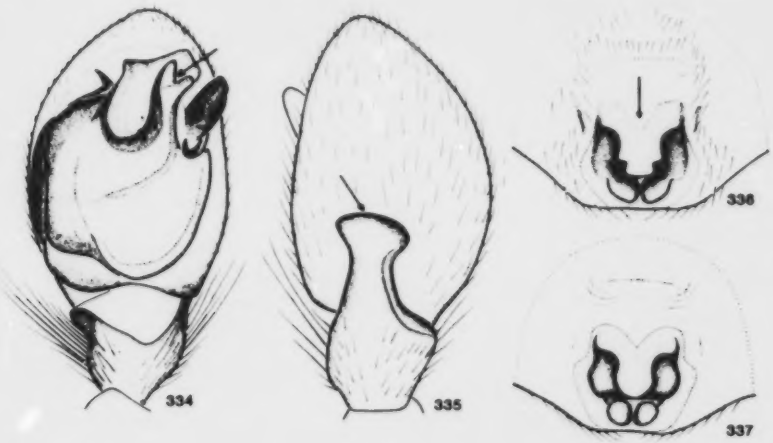
Haplodrassus eunis Chamberlin

Figs. 334–337; Map 58

Haplodrassus eunis Chamberlin, 1922:162; Platnick and Shadab 1975*b*:20, figs. 31–38.

Haplodrassus utus Chamberlin and Ivie, 1946:8, figs. 9–11.

Male. Total length 3.95 ± 0.37 mm; carapace 1.77 ± 0.05 mm long, 1.37 ± 0.04 mm wide; femur II 1.06 ± 0.05 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.08, PLE 0.06, AME–AME 0.08, AME–ALE 0.03, PME–PME 0.05, PME–PLE 0.07, ALE–PLE 0.05; median ocular quadrangle 0.22 long, 0.18 wide at front, 0.21 wide at back. Palpus with retrolateral tibial apophysis dorsally situated, flattened, expanded distally (Fig. 335); terminal apophysis rather slender, arising near midline of genital bulb, and having tip finely divided (Fig. 334); median apophysis rather broad, with fine hook at tip.



Figs. 334–337. Genitalia of *Haplodrassus eunis*. 334, 335, palpus of male; 334, ventral view; 335, dorsal view; 336, 337, epigynum and spermathecae; 336, ventral view; 337, dorsal view.

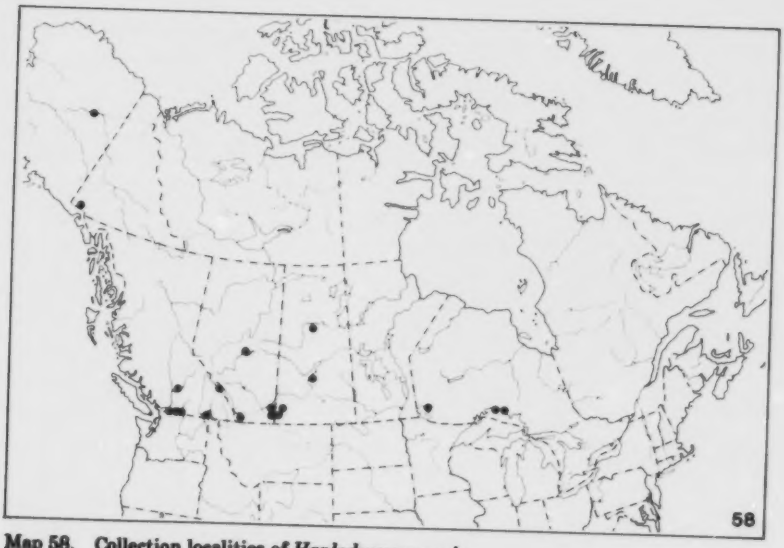
Female. Total length 5.42 ± 0.75 mm; carapace 2.03 ± 0.10 mm long, 1.55 ± 0.11 mm wide; femur II 1.19 ± 0.07 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.10, PME 0.12, PLE 0.10, AME–AME 0.09, AME–ALE 0.04, PME–PME 0.02, PME–PLE 0.08, ALE–PLE 0.07; median ocular

quadrangle 0.28 long, 0.21 wide at front, 0.26 wide at back. Epigynum notched anteriorly at midline and having broad irregular-shaped lateral sclerites (Fig. 336); spermathecae sac-like (Fig. 337).

Comments. Male individuals of *H. eunis* are distinguished from those of the other Canadian species of *Haplodrassus* by the slender, finely divided terminal apophysis; female individuals are distinguished by the notched epigynum and irregularly shaped lateral sclerites.

Range. Alaska to north shore of Lake Superior, south to California, Arizona, and New Mexico.

Biology. Mature males have been taken from late May to early July, mature females from early April to late August. Specimens have been collected under logs and in pitfall traps in grasslands, clover fields, and deciduous and pine forests at elevations of up to 3800 m.



Map 58. Collection localities of *Haplodrassus eunis*.

Genus *Litopyllus* Chamberlin

Spiders of the genus *Litopyllus* are small inconspicuous inhabitants of leaf litter in forests. Their bodies, legs, and abdominal venters are light brown, and the abdominal dorsum is brownish gray. Aside from some partial habitat information, almost nothing is known of the biology of these spiders.

Description. Total length 2.0–8.3 mm. Carapace ovoid, light brown, widest between coxae II and III, narrowed at level of coxae I, and having numerous erect dark slender setae. From front, both rows of eyes procurved; from above, anterior row recurved and posterior row procurved; anterior median eyes round and dark; remaining eyes ovoid and light; posterior median eyes usually largest; remaining eyes subequal in size; anterior median eyes separated from each other by their diameter or less and from anterior lateral eyes by their radius or less; posterior median eyes separated from each other by their radius or less and from posterior lateral eyes usually by their radius or more; lateral eyes of each side separated by their diameter or less; median ocular quadrangle approximately equal in length and width. Chelicerae light brown, each with a retromarginal tooth and with a promarginal carina that is not subdivided into distinct teeth (Fig. 15). Palp-coxal lobes with sinuous lateral margins. Legs light brown, in order of length 4123; typical macrosetal pattern: femora I, II d1-1-1, p0-0-1; III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-0-1, r0-0-1; patellae III, IV r0-1-0; tibiae I v1-1-1; II v0-1-1; III d1-0-0, p2-1-1, v1-2-2, r0-1-1; IV p1-1-1, v1-2-2, r1-1-1; basitarsi I, II v1-0-0; III p1-2-2, v2-0-1, r1-1-2; IV p1-2-2, v2-2-1, r1-2-2; tarsi scopulate; trochanters with shallow notch ventrally at tip; basitarsi III and IV with preening brush. Abdomen brownish gray dorsally, covered with pale gray silky setae; male abdomen with large orange scutum. Male palpus with retrolateral apophysis short to longer, with embolus short, curved, or sinuous, and with conductor slender, all situated together at extreme tip of genital bulb (Figs. 338, 339); median apophysis absent. Epigynum with posterior margin procurved (Fig. 340) and sometimes with broad median plate; spermathecae each in two parts (Fig. 341).

Comments. Representatives of the genus *Litopyllus* are distinguished from those of the other Canadian gnaphosid genera by the short curved or sinuous embolus and slender conductor situated together at the extreme tip of the genital bulb and by the lack of a median apophysis in males and the subdivision of the spermathecae in females. The genus with which most confusion is likely to arise is *Drassodes*, representatives of which possess deep ventral notches on the leg trochanters.

The genus *Litopyllus* is restricted to North America and comprises three species (Platnick and Shadab 1980*a*). A single species is assumed to occur in Canada.

Litopyllus temporarius Chamberlin

Figs. 15, 338–341; Map 54

Prosthesima lutea Barrows, 1919:356, figs. 5*a*, 5*b*. Name preoccupied in genus *Prosthesima*.

Litopyllus temporarius Chamberlin, 1922:155; Platnick and Shadab 1980*a*:17, figs. 27–30.

Litopyllus rupicolens Chamberlin, 1922:155; Kaston 1948:365, figs. 1269–1272 (pl. 67).

Litopyllus ambiguus Fox, 1938:235, fig. 4 (pl. 1).

Litopyllus liber Chamberlin and Gertsch, 1940:2, figs. 11, 12.

Litopyllus barrowsi Roewer, 1951:443, new name for *Prosthesima lutea* Barrows.

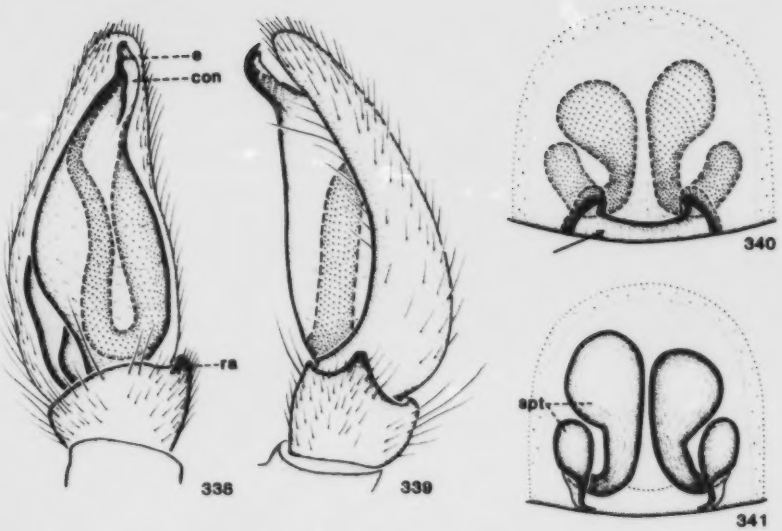
Male. Total length 4.63 ± 0.60 mm; carapace 2.33 ± 0.29 mm long, 1.71 ± 0.22 mm wide; femur II 1.56 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.12, ALE 0.11, PME 0.13, PLE 0.11, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.03, PME–PLE 0.06, ALE–PLE 0.03; median ocular quadrangle 0.26 long, 0.30 wide at front, 0.29 wide at back. Carapace and legs pale orange to yellowish brown. Abdomen yellowish, covered with gray hair. Retrolateral tibial apophysis short, blunt (Fig. 339); embolus sinuous, with tip directed retrolaterally in ventral view (Fig. 338).

Female. Total length 6.05 ± 1.05 mm, carapace 2.62 ± 0.19 mm long, 1.89 ± 0.14 mm wide; femur II 1.63 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.12, PME 0.13, PLE 0.12, AME–AME 0.10, AME–ALE 0.03, PME–PME 0.06, PME–PLE 0.10, ALE–PLE 0.05; median ocular quadrangle 0.38 long, 0.32 wide at front, 0.32 wide at back. Epigynum with posteromedian plate broad and excavated (Fig. 340); spermathecae with anterior part much larger than posterior part (Fig. 341).

Comments. Individuals of *L. temporarius* are distinguished from those of other Canadian gnaphosid genera by the characters given for the genus *Litopyllus*, particularly those of the embolus, conductor, and spermathecae.

Range. Michigan to Massachusetts, south to Arkansas and northern Florida.

Biology. Mature males have been collected from April to August, mature females from March to October. Collections were made in oak litter and beneath pine trees.



Figs. 338–341. Genitalia of *Litopyllus temporarius*. 338, 339, palpus of male; 338, ventral view; 339, retrolateral view; 340, 341, epigynum and spermathecae; 340, ventral view; 341, dorsal view. *e*, embolus; *con*, conductor; *ra*, retrolateral tibial apophysis; *apt*, spermatheca.

Genus *Sergiolus* Simon

Spiders of the genus *Sergiolus* are known for their striking abdominal patterns consisting of broad transverse white bands on a black background. They are, however, rarely seen in nature and are also uncommon in museum collections. Consequently, little is known of their biology except that most of them inhabit litter in deciduous forests, particularly where the terrain is rolling and sunny; they can also be found in open grasslands. A few kinds occur mainly on sand dunes; one, *S. bicolor* Banks, is unusual in that it is found mainly on shrubs or in plant crannies, such as empty pods or galls.

Description. Total length 3.3–9.1 mm. Carapace orange to dark brown, ovoid in dorsal view, gradually narrowed at sides toward front, widest at level of coxae II and III, and having both erect and recumbent black setae and, laterally, recumbent white scales. Both rows of eyes, from above and from front, recurved; anterior median eyes circular; posterior median eyes irregularly ovoid; lateral eyes ovoid, often somewhat larger than median eyes; median eyes subequal in size; anterior median eyes separated from each other by approximately their maximum width and from anterior lateral eyes by half their width or less; posterior median

eyes usually separated from each other by more than their width and from posterior lateral eyes by somewhat less than their width; median ocular quadrangle usually with posterior width somewhat greater than anterior width or length. Chelicerae with low promarginal carina and lacking retromarginal teeth. Palp-coxal lobes elongate. Labium broadly triangular. Sternum long, narrow. Leg lengths 4123; most segments light orange and others darker; tarsi with sparse scopulae; trochanters shallowly notched; typical macrosetal pattern: femora I d1-1-1, p0-0-1; II d1-1-1, p0-1-1; III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-0-1, r0-0-1; patella III p0-1-0, r0-1-0; tibiae I v0-0-1; II v0-1-1; III d1-0-0, p1-1-1, v2-2-2, r0-1-1; IV p1-1-1, v2-2-2, r0-1-1; basitarsi I, II v1-0-0; III p1-2-2, v2-0-2, r1-1-2; IV p1-2-2, v2-2-2, r1-2-2. Abdomen (Figs. 342, 347, 358) sometimes noticeably elongated and slender, usually with black background, and with up to 4 transverse white bands formed of flattened scale-like setae; transverse bands sometimes interrupted mesally; male with dorsal scutum. Male palpus (Figs. 343, 344, 348, 349) with retrolateral tibial apophysis stout, pointed or truncate, sometimes sinuous or with small subapical ledge, and extending one-half or less length of cymbium; embolus apical, rather short, thick or slender, partly twisted around conductor; conductor apical, large, pale; median apophysis small, lying in membranous area at base of conductor and embolus. Epigynum (Figs. 345, 351, 356, 362) shallow, angular or rounded, sometimes with small hood; copulatory tubes short, usually not visible; spermathecae large, kidney-shaped, touching or nearly so, with pair of small knobbed spermathecal organs lying posteriorly in space between them.

Comments. Representatives of the genus *Sergiolus* are distinguished from those of other gnaphosid genera in Canada except *Nodocion* by the combined presence of a promarginal carina on the chelicera and the absence of retromarginal teeth; by the twisting of the embolus around the soft, pale conductor; and by the large kidney-shaped spermathecae, between which are situated a pair of small knobbed spermathecal organs. The white transverse abdominal bands are unique, though a similar pattern is found in numerous genera from other parts of the world, including the Old World genus *Poecilochroa* (see Grimm 1985). The nearest North American relative is the genus *Nodocion*, members of which share the above-mentioned genital characters but lack white transverse bands on the abdomen.

The genus *Sergiolus* is restricted to North America and comprises 18 species (Platnick and Shadab 1981). Ten species occur or are assumed to occur in Canada.

Key to species of *Sergiolus*

1. Male 2

   Female 11

2(1). Retrolateral tibial apophysis with heel-like process on dorsal margin (Fig. 344) ..... ***montanus* (Emerton)** (p. 233)

   Retrolateral tibial apophysis lacking heel-like process 3

3(2). Embolus greatly thickened basally, with tip abruptly tapered (Figs. 349, 355, 360, 366) 4

   Embolus more slender basally, with tip usually more gradually tapered (Figs. 371, 383, 395) 7

4(3). Retrolateral tibial apophysis sinuous distally (Fig. 349). Spider occurring in the East and the Midwest (Map 60) ..... ***tennesseensis* Chamberlin** (p. 235)

   Retrolateral tibial apophysis straighter (Figs. 355, 360, 366). Spider occurring in the West and the Midwest (Map 60) 5

5(4). Retrolateral tibial apophysis abruptly tapered to sharp point (Figs. 360, 366) 6

   Retrolateral tibial apophysis not abruptly tapered, with tip rounded (Fig. 355) ..... ***iviei* Platnick & Shadab** (p. 237)

6(5) Embolus nearly straight (Fig. 359) ..... ***columbianus* (Emerton)** (p. 239)

   Embolus strongly curved (Fig. 365) ..... ***angustus* (Banks)** (p. 241)

7(3). Dorsum of abdomen with T-shaped white mark (Fig. 369) or with pair of white spots in space between anterior and middle bands (Fig. 375) 8

   Dorsum of abdomen with neither T-shaped mark nor pair of white spots 9

8(7). Dorsum of abdomen with T-shaped white mark (Fig. 369). Posterior declivity of carapace, and at least patella and basal third of tibia IV, darkened. Retrolateral tibial apophysis with minute pointed hook at tip (Fig. 370) ..... ***capulatus* (Walckenaer)** (p. 243)

   Dorsum of abdomen with pair of white spots (Fig. 375). Posterior declivity of carapace, and patella and basal third of tibia IV, not darkened. Retrolateral tibial apophysis truncated at tip, with small subapical ledge (Fig. 376) ..... ***ocellatus* (Walckenaer)** (p. 245)

9(7). Venter of abdomen with dark midstripe (Fig. 384) ..... ***decoratus* Kaston** (p. 247)

Venter of abdomen lacking dark midstripe 10

10(9). Retrolateral tibial apophysis truncate at tip (Fig. 389). Abdomen approximately twice as long as wide (Fig. 387) ..... ***unimaculatus* Emerton** (p. 249)

Retrolateral tibial apophysis bluntly pointed at tip (Fig. 395). Abdomen less than twice as long as wide (Fig. 393) ..... ***bicolor* Banks** (p. 251)

11(1). Epigynum broad, with broad depression at posterior margin (Fig. 345) ..... ***montanus* (Emerton)** (p. 233)

Epigynum narrower, lacking broad depression at posterior margin (Figs. 351, 356, 362, 367) 12

12(11). Epigynum approximately triangular, with distinctly conical anterior margin (Figs. 351, 356, 362, 367) 13

Epigynum rectangular or rounded, lacking conical anterior margin (Figs. 373, 379, 385, 391) 16

13(12). Epigynum with broad tongue-shaped plate (Fig. 362) ..... ***columbianus* (Emerton)** (p. 239)

Epigynum lacking tongue-shaped plate 14

14(13). Epigynum externally extending farther anteriorly than spermathecae (Figs. 356, 367) 15

Epigynum externally extending less far anteriorly than spermathecae (Fig. 351) ..... ***tennesseensis* Chamberlin** (p. 235)

15(14). Spermathecal organs large, approximately one-half as long as spermathecae (Fig. 357) ..... ***iviei* Platnick & Shadab** (p. 237)

Spermathecal organs smaller, less than one-third as long as spermathecae (Fig. 368) ..... ***angustus* (Banks)** (p. 241)

16(12). Dorsum of abdomen with T-shaped white mark or with paired white spots in space between anterior and middle bands (Figs. 369, 375) 17

Dorsum of abdomen with neither T-shaped white marks nor paired white spots 18

17(16). Dorsum of abdomen with T-shaped mark (Fig. 369). Posterior declivity of carapace, and patella and basal third of tibia IV, darkened. Epigynum with lateral margins rounded (Fig. 373) ..... ***capulatus* (Walckenaer)** (p. 243)

Dorsum of abdomen with paired white spots (Fig. 375). Posterior declivity of carapace, and patella and basal third of tibia IV, not darkened. Epigynum with lateral margins more angular (Fig. 379) ..... ***ocellatus* (Walckenaer)** (p. 245)

18(16). Venter of abdomen with dark midstripe (Fig. 384). Epigynum somewhat onion-shaped (Fig. 385) ..... ***decoratus* Kaston** (p. 247)

Venter of abdomen lacking dark midstripe (Figs. 390, 396). Epigynum with lateral margins more angular (Figs. 391, 397) 19

19(18). Epigynum with lateral margins triangular (Fig. 391). Abdomen approximately twice as long as wide (Fig. 387) ..... ***unimaculatus* Emerton** (p. 249)

Epigynum with lateral margins more rectangular (Fig. 397). Abdomen less than twice as long as wide (Fig. 393) ..... ***bicolor* Banks** (p. 251)

Clé des espèces de *Sergiolus*

1. Mâle 2

Femelle 11

2(1). Apophyse tibiale rétrolatérale pourvue d'un processus en forme de talon sur la marge dorsale (fig. 344) ..... ***montanus* (Emerton)** (p. 233)

Apophyse tibiale rétrolatérale dépourvue de processus en forme de talon 3

3(2). Embolus fortement épaissi à la base, à extrémité brusquement effilée (fig. 349, 355, 360, 366) 4

Embolus plus mince à la base, à extrémité généralement plus graduellement effilée (fig. 371, 383, 395) 7

4(3). Apophyse tibiale rétrolatérale sinueuse distalement (fig. 349). Araignée de l'est et du Midwest (carte 60) ..... ***tennesseensis* Chamberlin** (p. 235)

Apophyse tibiale rétrolatérale plus droite (fig. 355, 360, 366). Araignée de l'ouest et du Midwest (carte 60) 5

5(4). Apophyse tibiale rétrolatérale s'effilant brusquement jusqu'à une pointe acérée (fig. 360, 366) 6

Apophyse tibiale rétrolatérale ne s'effilant pas brusquement, à extrémité plutôt ronde (fig. 355) ..... ***iviei* Platnick & Shadab** (p. 237)

6(5). Embolus presque droit (fig. 359) ..... ***columbianus* (Emerton)** (p. 239)

Embolus fortement courbé (fig. 365) ..... ***angustus* (Banks)** (p. 241)

7(3). Dorsum de l'abdomen pourvu d'une marque blanche en forme de T (fig. 369) ou d'une paire de taches blanches dans l'espace entre les bandes antérieures et médianes (fig. 375) 8

Dorsum de l'abdomen sans marque en forme de T ni paire de taches blanches 9

8(7). Dorsum de l'abdomen pourvu d'une marque blanche en forme de T (fig. 369). Déclivité postérieure de la carapace, et au moins patelle et tiers basal du tibia IV de teinte foncée. Apophyse tibiale rétrolatérale munie d'un minuscule crochet pointu à l'extrémité (fig. 370) ..... ***capulatus* (Walckenaer)** (p. 243)

Dorsum de l'abdomen pourvu d'une paire de taches blanches (fig. 375). Déclivité postérieure de la carapace, et patelle et tiers basal du tibia IV non foncés. Apophyse tibiale rétrolatérale tronquée à l'extrémité, pourvue d'une petite saillie subapicale (fig. 376) ..... ***ocellatus* (Walckenaer)** (p. 245)

9(7). Face ventrale de l'abdomen munie d'une rayure médiane foncée (fig. 384) ..... ***decoratus* Kaston** (p. 247)

Face ventrale de l'abdomen dépourvue de rayure médiane foncée 10

10(9). Apophyse tibiale rétrolatérale tronquée à l'extrémité (fig. 389). Abdomen environ deux fois plus long que large (fig. 387) ..... ***unimaculatus* Emerton** (p. 249)

Apophyse tibiale rétrolatérale vaguement pointue à l'extrémité (fig. 395). Abdomen moins de deux fois plus long que large (fig. 393) ..... ***bicolor* Banks** (p. 251)

11(1). Épigyne large, pourvue d'une large dépression à la marge postérieure (fig. 345) ..... ***montanus* (Emerton)** (p. 233)

Épigyne plus étroite, dépourvue de large dépression à la marge postérieure (fig. 351, 356, 362, 367) 12

12(11). Épigyne à peu près triangulaire, à marge antérieure nettement conique (fig. 351, 356, 362, 367) 13

Épigyne rectangulaire ou plutôt ronde, sans marge antérieure conique (fig. 373, 379, 385, 391) 16

13(12). Épigyne pourvue d'une plaque large en forme de langue (fig. 362) ..... ***columbianus*** **(Emerton)** (p. 239)

Épigyne dépourvue de plaque en forme de langue 14

14(13). Épigyne, vue de l'extérieur, s'étendant plus loin antérieurement que les spermathèques (fig. 356, 367) 15

Épigyne, vue de l'extérieur, s'étendant moins loin antérieurement que les spermathèques (fig. 351) ..... ***tennesseensis*** **Chamberlin** (p. 235)

15(14). Organes spermathécaux grands, d'environ la moitié de la longueur des spermathèques (fig. 357) ..... ***iviei*** **Platnick & Shadab** (p. 237)

Organes spermathécaux plus petits, de moins du tiers de la longueur des spermathèques (fig. 368) ..... ***angustus*** **(Banks)** (p. 241)

16(12). Dorsum de l'abdomen pourvu d'une marque blanche en forme de T ou de taches blanches en paires dans l'espace entre les bandes antérieures et médianes (fig. 369, 375) 17

Dorsum de l'abdomen sans marque blanche en forme de T ni taches blanches en paires 18

17(16). Dorsum de l'abdomen pourvu d'une marque blanche en forme de T (fig. 369). Déclivité postérieure de la carapace, et patelle et tiers basal du tibia IV de teinte foncée. Épigyne à marges latérales plutôt rondes (fig. 373) ..... ***capulatus*** **(Walckenaer)** (p. 243)

Dorsum de l'abdomen pourvu de taches blanches en paires (fig. 375). Déclivité postérieure de la carapace, et patelle et tiers basal du tibia IV non foncés. Épigyne à marges latérales plus anguleuses (fig. 379) ..... ***ocellatus*** **(Walckenaer)** (p. 245)

18(16). Face ventrale de l'abdomen pourvue d'une rayure médiane foncée (fig. 384). Épigyne légèrement en forme d'oignon (fig. 385) ..... ***decoratus*** **Kaston** (p. 247)

Face ventrale de l'abdomen dépourvue de rayure médiane foncée (fig. 390, 396). Épigyne à marges latérales plus anguleuses (fig. 391, 397) 19

19(18). Épigyne à marges latérales triangulaires (fig. 391). Abdomen environ deux fois plus long que large (fig. 387) .... ***unimaculatus*** **Emerton** (p. 249)

Épigyne à marges latérales plus rectangulaires (fig. 397). Abdomen moins de deux fois plus long que large (fig. 393) ... . ***bicolor*** **Banks** (p. 251)

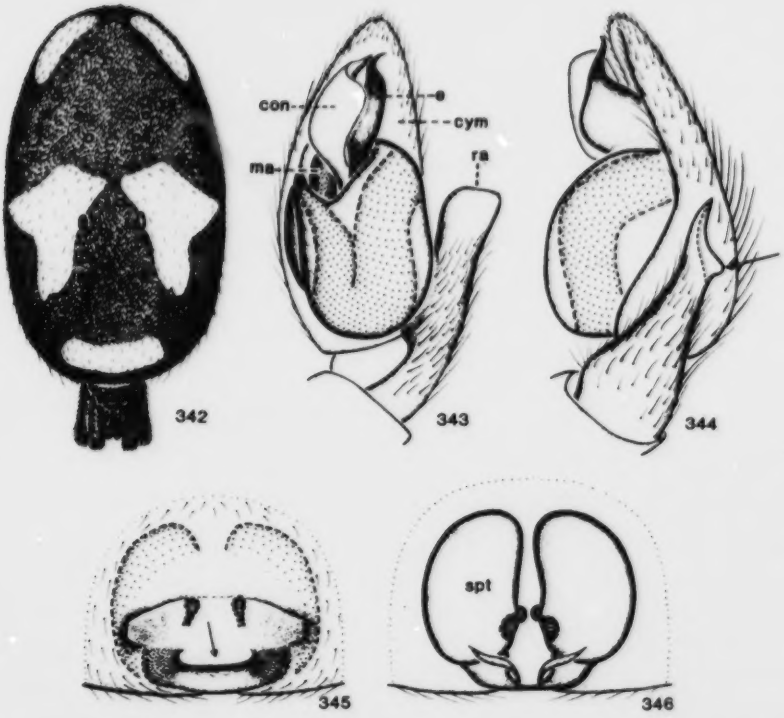
Sergiolus montanus (Emerton)

Figs. 342–346; Map 59

Poecilochroa montana Emerton, 1890:175, fig. 2 (pl. 4).
Poecilochroa pacifica Banks, 1896c:89.
Sergiolus montana: Bryant 1908:8.
Sergiolus montanus: Petrunkevitch 1911:146; Platnick and Shadab 1981:28, figs. 72–76.
Poecilochroa abjecta Chamberlin, 1936a:7, figs. 11, 12.
Poecilochroa montanoides Schenkel, 1950:41, fig. 8.

Male. Total length 4.85 ± 0.46 mm; carapace 2.31 ± 0.21 mm long, 1.69 ± 0.15 mm wide; femur II 1.47 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.10, PME 0.09, PLE 0.09, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.13, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.31 long, 0.25 wide at front, 0.32 wide at back. Carapace usually darkened but sometimes light in western specimens. Leg I usually with coxa and femur darkened but sometimes lighter in western specimens. Abdomen usually with two pairs of white spots on dorsum (Fig. 342) but sometimes with lateral spots joined to form broad lateral stripes; venter uniformly dark. Palpal tibia with retrolateral apophysis bearing heel-like dorsal process (Fig. 344); embolus broad basally, slender and sinuous distally (Fig. 343).

Female. Total length 6.89 ± 1.08 mm; carapace 2.89 ± 0.32 mm long, 2.05 ± 0.23 mm wide; femur II 1.69 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.11, PME 0.10, PLE 0.12, AME–AME 0.08, AME–ALE 0.04, PME–PME 0.16, PME–PLE 0.13, ALE–PLE 0.10; median ocular quadrangle 0.34 long, 0.30 wide at front, 0.36 wide at back. Coloration as in male. Epigynum broad, hoodless, angular at lateral margins, and having curved depression at posterior margin (Fig. 345); spermathecae nearly touching (Fig. 346).

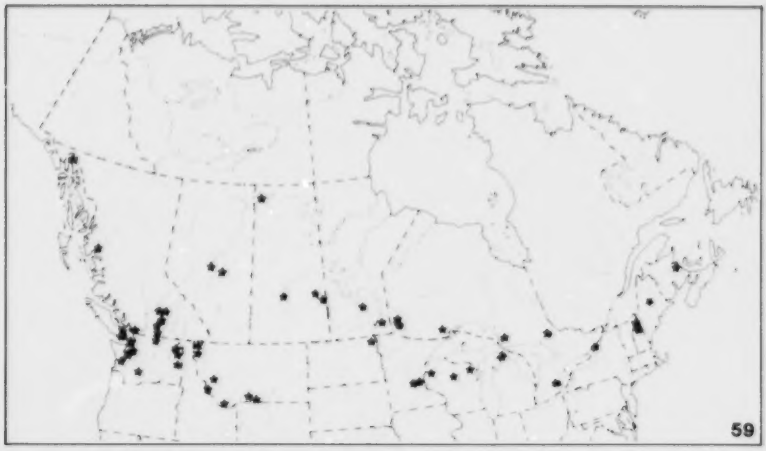


Figs. 342–346. Structures of *Sergiolus montanus*. 342, abdomen, dorsal view; 343, 344, palpus of male; 343, ventral view; 344, retrolateral view; 345, 346, epigynum and spermathecae; 345, ventral view; 346, dorsal view. *con*, conductor; *cym*, cymbium; *e*, embolus; *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *spt*, spermatheca.

Comments. Individuals of *S. montanus* are distinguished from those of the other Canadian species in the genus by the presence of a distinct heel-like dorsal process on the retrolateral tibial apophysis and by the epigynum, which is broad, angular at lateral margins, and has a curved depression at the posterior margin.

Range. Southernmost Alaska to New Brunswick, south to South Carolina and to Baja California (Norte), Mexico.

Biology. Mature males have been taken in February and from late April to early October, mature females in every month except December. Specimens have been collected in pine, oak, and aspen forests, in sage, on beaches and bogs, in buildings, and on talus slopes, at elevations up to 3400 m.



Map 59. Collection localities of *Sergiolus montanus*.

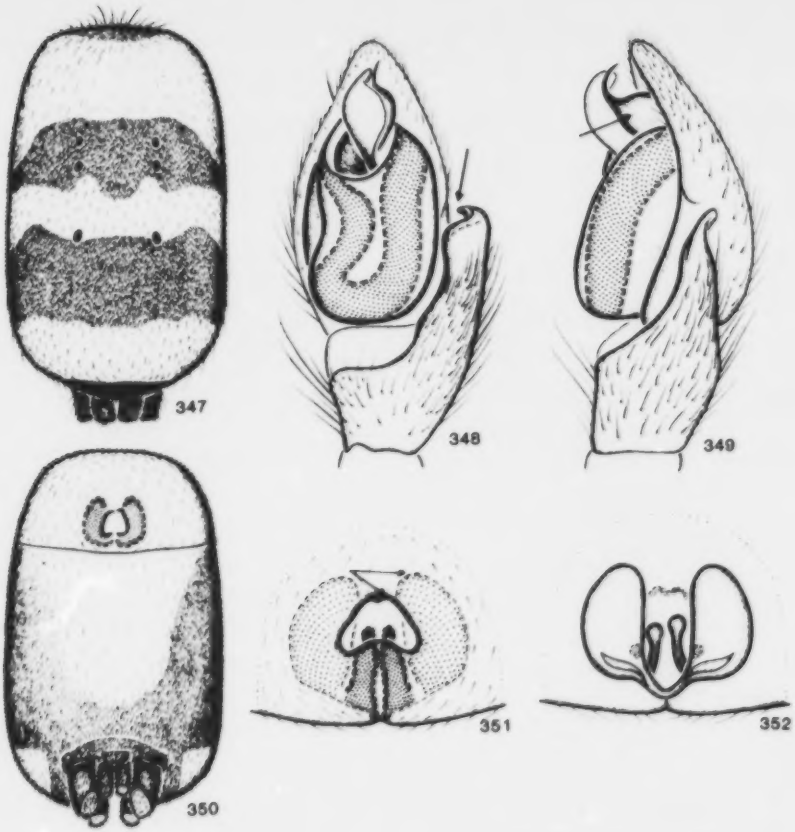
Sergiolus tennesseensis Chamberlin

Figs. 347–352; Map 60

Sergiolus tennesseensis Chamberlin, 1922:152; Platnick and Shadab 1981:34, figs. 88–93.

Male. Total length 3.59–5.16 mm; carapace 1.58–2.47 mm long, 1.21–1.81 mm wide; femur II 1.17–1.78 mm long (five specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.05, PME 0.07, PLE 0.05, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.16 long, 0.13 wide at front, 0.19 wide at back. Carapace dark. Legs with femora dark and with other segments light. Abdomen with broad white bands anteriorly, at middle, and posteriorly (Fig. 347). Retrolateral tibial apophysis sinuous toward tip (Figs. 348, 349); embolus greatly thickened at base and abruptly tapered to slender distal part (Fig. 349).

Female. Total length 5.04–6.26 mm; carapace 2.29–2.87 mm long, 1.66–2.00 mm wide; femur II 1.55–1.91 mm long (eight specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.07, PME 0.08, PLE 0.07, AME–AME 0.06, AME–ALE 0.02, PME–PME 0.07, PME–PLE 0.06, ALE–PLE 0.10; median ocular quadrangle 0.23 long, 0.16 wide at front, 0.23 wide at back. Coloration as in male (Figs. 347, 350). Epigynum approximately triangular, lacking tongue-shaped plate, and extending less far anteriorly than spermathecae (Fig. 351); spermathecae separated by nearly their width (Fig. 352).

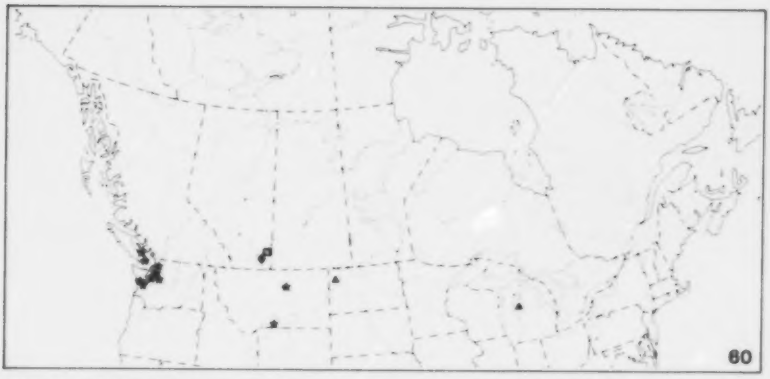


Figs. 347–352. Structures of *Sergiolus tennesseensis*. 347, 350, abdomen; 347, dorsal view; 350, ventral view; 348, 349, palpus of male; 348, ventral view; 349, retrolateral view; 351, 352, epigynum and spermathecae; 351, ventral view; 352, dorsal view.

Comments. Individuals of *S. tennesseensis* are distinguished from those of the other Canadian species in the genus by the following combination of characters: embolus thickened at base and abruptly tapered toward tip; retrolateral tibial apophysis sinuous toward tip; and epigynum approximately triangular, lacking tongue-shaped plate, and extending less far anteriorly than spermathecae.

Range. North Dakota to Michigan, south to Colorado, Arkansas, and Virginia.

Biology. Mature males have been taken in June, mature females from June to August. No specific habitats are recorded, but most of the available specimens were collected in forests.



Map 60. Collection localities of *Sergiolus tennesseensis* (▲), *S. iviei* (◆), *S. columbianus* (★), and *S. angustus* (□).

Sergiolus iviei Platnick & Shadab

Figs. 353–357; Map 60

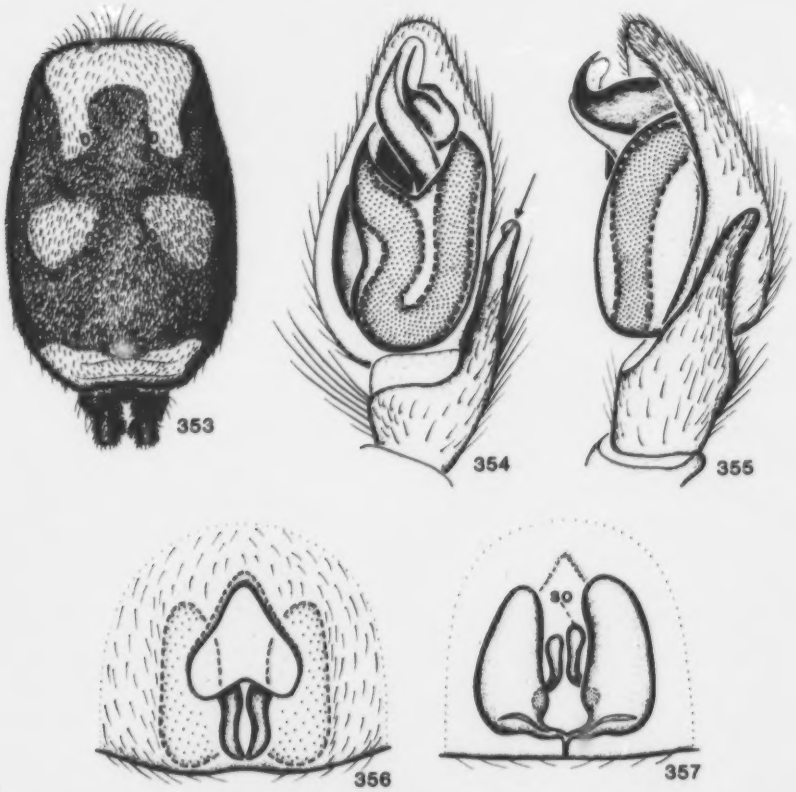
Sergiolus iviei Platnick and Shadab, 1981:34, figs. 94–98.

Male. Total length 3.30–4.39 mm; carapace 1.45–1.92 mm long, 1.14–1.37 mm wide; femur II 0.92–1.15 mm long (five specimens measured). Eye sizes and distances between them (in millimetres): AME 0.04, ALE 0.07, PME 0.06, PLE 0.06, AME–AME 0.05, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.05, ALE–PLE 0.07; median ocular quadrangle 0.21 long, 0.13 wide at front, 0.18 wide at back. Carapace light in color; abdomen with middle transverse band represented by paired spots (Fig. 353) or with these spots joined to ends of anterior band; venter pale yellow. Retrolateral tibial apophysis straight, slender distally, rounded at tip (Fig. 355); embolus broad at base and abruptly tapered to slender distal part (Figs. 354, 355).

Female. Total length 6.04 ± 0.99 mm; carapace 2.59 ± 0.42 mm long, 1.76 ± 0.28 mm wide; femur II 1.39 ± 0.21 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.07, PME 0.07, PLE 0.07, AME–AME 0.05, AME–ALE 0.02, PME–PME 0.09, PME–PLE 0.07, ALE–PLE 0.07; median ocular quadrangle 0.23 long, 0.17 wide at front, 0.23 wide at back. Coloration as

in male, though white spots when present often less distinct. Epigynum triangular, with distinct conical anterior margin, and extending farther anteriorly than spermathecae (Fig. 356); spermathecae separated by somewhat more than one-half their width (Fig. 357).

Comments. Individuals of *S. iviei* are distinguished from those of the other Canadian species by the following combination of characters: retrolateral tibial apophysis straight, rather slender, and rounded at tip; embolus thick at base and abruptly tapered toward tip; epigynum large, triangular, and extending farther anteriorly than spermathecae; and spermathecal organs large.



Figs. 353–357. Structures of *Sergiolus iviei*. 353, abdomen, dorsal view; 354, 355, palpus of male; 354, ventral view; 355, retrolateral view; 356, 357, epigynum and spermathecae; 356, ventral view; 357, dorsal view. *so*, spermathecal organ.

Range. Oregon and southern Alberta, south to Nevada and Colorado.

Biology. Mature males have been taken in January and from May to July, mature females from April to September. The only recorded habitat is "under a stone."

Sergiolus columbianus (Emerton)

Figs. 358–363; Map 60

Poecilochroa columbiana Emerton, 1917:269, fig. 21.
Sergiolus columbianus: Platnick and Shadab 1981:31, figs. 77–82.

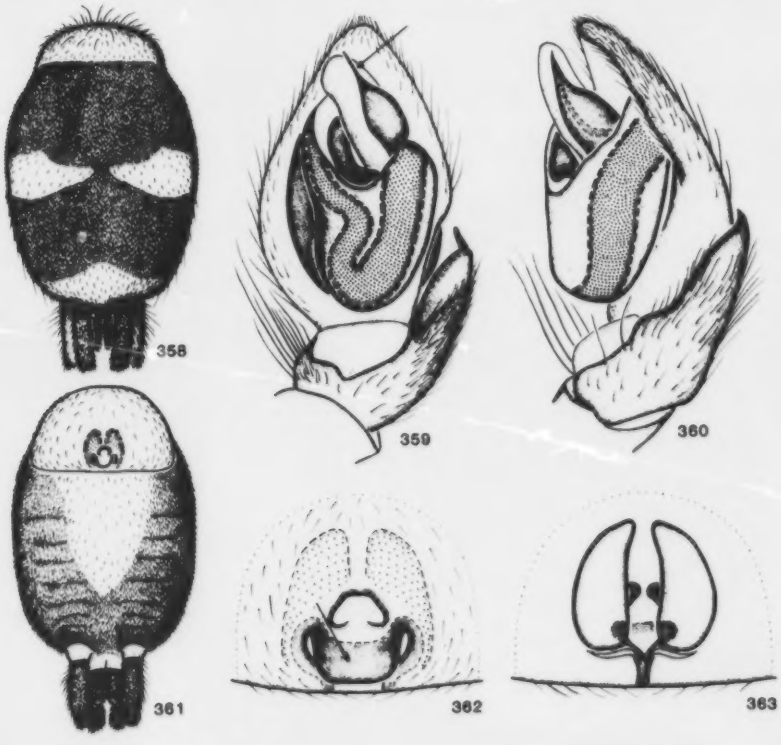
Male. Total length 5.25 ± 0.64 mm; carapace 2.34 ± 0.31 mm long, 1.63 ± 0.20 mm wide; femur II 1.54 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.09, PME 0.08, PLE 0.07, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.11, PME–PLE 0.10, ALE–PLE 0.10; median ocular quadrangle 0.27 long, 0.18 wide at front, 0.27 wide at back. Carapace and most leg segments dark; abdomen with middle white band interrupted at midline (as in Fig. 358). Retrolateral tibial apophysis straight, tapered, with sharp point at tip (Fig. 360); embolus greatly thickened at base and abruptly tapered to slender distal part (Fig. 359).

Female. Total length 6.33 ± 0.94 mm; carapace 2.64 ± 0.21 mm long, 1.80 ± 0.16 mm wide; femur II 1.63 ± 0.14 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.09, PME 0.08, PLE 0.09, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.15, PME–PLE 0.11, ALE–PLE 0.10; median ocular quadrangle 0.30 long, 0.25 wide at front, 0.31 wide at back. Coloration (Figs. 358, 361) as in male. Epigynum with small triangular atrium and with broad tongue-shaped plate (Fig. 362); spermathecae somewhat narrowed anteriorly, narrowly separated (Fig. 363).

Comments. Individuals of *S. columbianus* are distinguished from those of other Canadian species in the genus by the following combination of characters: retrolateral tibial apophysis straight and sharply pointed; embolus thickened at base and abruptly tapered; and epigynum triangular, with broad tongue-shaped plate.

Range. Vancouver Island to South Dakota, south to California and Arizona.

Biology. Mature males of *S. columbianus* have been taken from March to August, mature females from May to September and in December. Individuals have been collected in pine and oak forests; in chaparral, sage, pinyon pine, and juniper stands; in grass; under stones, boards, and beach drift; and in houses.



Figs. 358–363. Structures of *Sergiolus columbianus*. 358, 361, abdomen; 358, dorsal view; 361, ventral view; 359, 360, palpus of male; 359, ventral view; 360, retrolateral view; 362, 363, epigynum and spermathecae; 362, ventral view; 363, dorsal view.

Sergiolus angustus (Banks)

Figs. 364–368; Map 60

Herpyllus angustus Banks, 1904*a*:337, fig. 43.
Sergiolus atomisicus Chamberlin, 1924:610, fig. 46.
Sergiolus fruitanus Chamberlin, in Chamberlin and Gertsch, 1928:177.
Sergiolus bebius Chamberlin, 1936*a*:9, fig. 13.
Sergiolus clarus Chamberlin, 1936*a*:9, figs. 20, 21.
Zelotes pananus Chamberlin, 1936*b*:10, fig. 44.
Sergiolus angustus: Platnick and Shadab 1981:37, figs. 99–103.

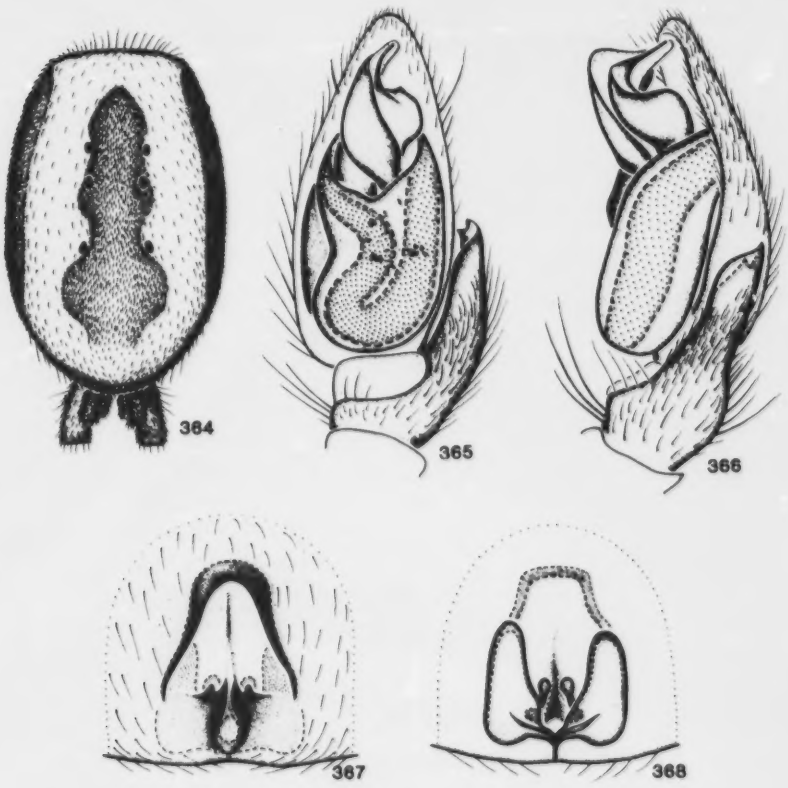
Male. Total length 4.57 ± 0.47 mm; carapace 2.08 ± 0.15 mm long, 1.45 ± 0.14 mm wide; femur II 1.27 ± 0.08 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.07, PME 0.07, PLE 0.07, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.06; median ocular quadrangle 0.23 long, 0.18 wide at front, 0.21 wide at back. Carapace dark; abdomen (Fig. 364) with long dark median stripe dorsally and with dark lateral stripes that may be broken into spots; venter light brown; leg femora dark, remaining segments usually light, and patellae and tibiae sometimes darkened. Retrolateral tibial apophysis rather broad, abruptly tapered to double tip (Fig. 366); embolus with base enlarged, strongly curved and more slender distally (Fig. 365).

Female. Total length 6.42 ± 1.49 mm; carapace 2.68 ± 0.41 mm long, 1.83 ± 0.32 mm wide; femur II 1.51 ± 0.14 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.09, PME 0.07, PLE 0.08, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.13, PME–PLE 0.12, ALE–PLE 0.11; median ocular quadrangle 0.27 long, 0.19 wide at front, 0.28 wide at back. Coloration as in male. Epigynum extending farther anteriorly than spermathecae and having large thick conical anterior margin (Fig. 367); spermathecae large, somewhat narrowed anteriorly, with spermathecal organs small and about one-third as long as spermathecae (Fig. 368).

Comments. Individuals of *S. angustus* are distinguished from those of the other Canadian species of *Sergiolus* by the following combination of characters: dorsum of abdomen with dark mid-stripe; retrolateral tibial apophysis broad, abruptly tapered to double tip; embolus large at base, narrowed and curved distally; epigynum with conical anterior margin that extends farther anteriorly than spermathecae; and spermathecal organs small.

Range. Southern Alberta to California and southern Mexico.

Biology. Mature males have been taken from February to June and in December, mature females in every month except January, August, and November. Specimens have been collected under stones, on cactus, and in association with coastal sage, oak, pine, cedar, and juniper, from sea level to 2550 m.



Figs. 364–368. Structures of *Sergiolus angustus*. 364, abdomen, dorsal view; 365, 366, palpus of male; 365, ventral view; 366, retrolateral view; 367, 368, epigynum and spermathecae; 367, ventral view; 368, dorsal view.

Sergiolus capulatus (Walckenaer)

Figs. 369–374; Map 61

Drassus capulatus Walckenaer, 1837:621.
Herpyllus variegatus Hentz, 1847:458, fig. 12 (pl. 24).
Sergiolus variegatus: Kaston 1948:362, figs. 1252–1256 (pl. 66).
Sergiolus capulatus: Chamberlin and Ivie 1944:174; Platnick and Shadab 1981:10, figs. 1, 2, 12–17.

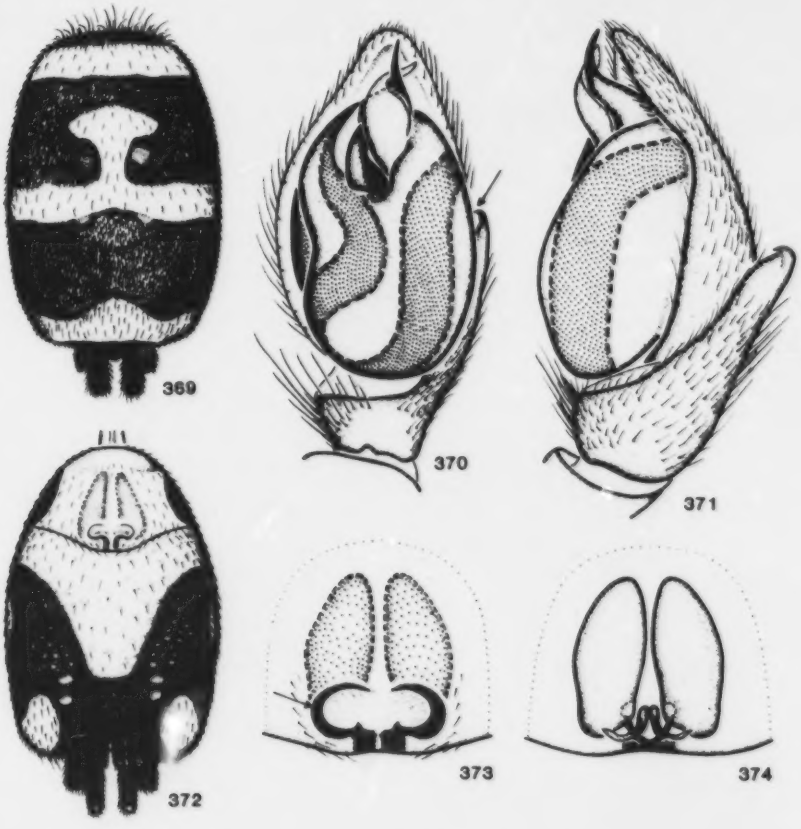
Male. Total length 5.58 ± 0.46 mm; carapace 2.66 ± 0.31 mm long, 1.81 ± 0.19 mm wide; femur II 1.54 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.08, PME 0.08, PLE 0.07, AME–AME 0.07, AME–ALE 0.02, PME–PME 0.12, PME–PLE 0.10, ALE–PLE 0.11; median ocular quadrangle 0.25 long, 0.20 wide at front, 0.29 wide at back. Carapace bright orange, with ocular area and posterior declivity darkened; legs orange, with partly or wholly darkened segments as follows: femora I–IV, patellae I, II, IV, tibiae I–IV; abdomen black with white T-shaped mark in space between anterior and middle bands (Fig. 369); venter with large white area on black background (Fig. 372). Retrolateral tibial apophysis stout, straight, with minute hook at tip (Fig. 371); embolus sinuous, gradually tapered toward tip (Fig. 370).

Female. Total length 6.92 ± 1.06 mm; carapace 3.04 ± 0.26 mm long, 2.08 ± 0.20 mm wide; femur II 1.67 ± 0.16 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.11, PLE 0.10, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.09, PME–PLE 0.14, ALE–PLE 0.17; median ocular quadrangle 0.32 long, 0.22 wide at front, 0.32 wide at back. Coloration as in male. Epigynum with distinct rounded lateral margins (Fig. 373); spermathecae elongated, virtually touching (Fig. 374).

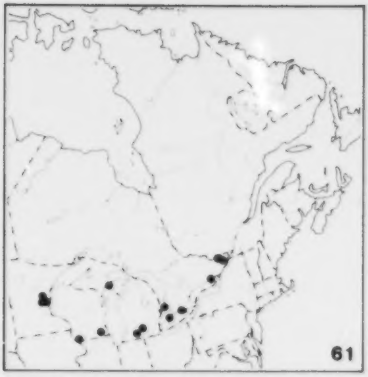
Comments. Specimens of *S. capulatus* are distinguished from those of the other Canadian species by the following combination of characters: abdomen with T-shaped white mark and with posterior declivity of carapace, and at least patella and basal third of tibia IV, darkened; retrolateral tibial apophysis with minute pointed hook at tip; embolus gradually tapered; and epigynum with distinct rounded lateral margins.

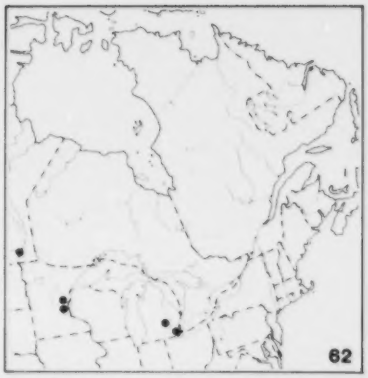
Range. Minnesota to southern Ontario and Massachusetts, south to Texas and Florida.

Biology. Mature males of *S. capulatus* have been taken from February to August and in November, mature females from May to September and in November. Individuals have been collected in meadows, lawns, and buildings and under litter or stones in oak, pine, maple, and basswood forests.



Figs. 369–374. Structures of *Sergiolus capulatus*. 369, 372, abdomen. 369, dorsal view; 372, ventral view; 370, 371, palpus of male; 370, ventral view; 371, retrolateral view; 373, 374, epigynum and spermathecae; 373, ventral view; 374, dorsal view.





Maps 61, 62. Collection localities of *Sergiolus* spp. 61, *S. capulatus*; 62, *S. bicolor*.

Sergiolus ocellatus (Walckenaer)

Figs. 375–380; Map 63

Drassus ocellatus Walckenaer, 1837:621.
Sergiolus decipiens Chamberlin, 1922:151.
Sergiolus ocellatus: Chamberlin and Ivie, 1944:175; Platnick and Shadab 1981:11, figs. 18–23.
Sergiolus decoratus: Kaston 1948:363, fig. 1265 (pl. 66).

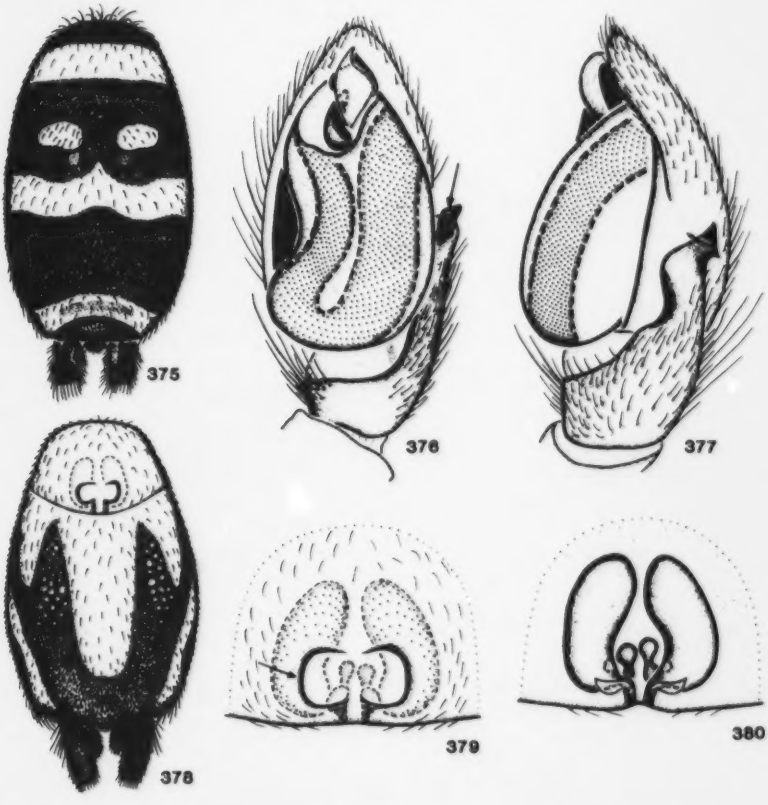
Male. Total length 4.69 ± 0.56 mm; carapace 2.09 ± 0.17 mm long, 1.45 ± 0.14 mm wide; femur II 1.21 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.07, PLE 0.07, AME–AME 0.04, AME–ALE 0.02, PME–PME 0.08, PME–PLE 0.07, ALE–PLE 0.06; median ocular quadrangle 0.22 long, 0.14 wide at front, 0.22 wide at back. Carapace with ocular area darkened; femur II partly darkened; patellae I and II darkened; tibiae I, II, and IV partly darkened; abdomen with paired white spots in space between anterior and middle transverse bands (Fig. 375); venter with white areas strongly invading black background from the front (Fig. 378). Retrolateral tibial apophysis stout, somewhat sinuous, with small subapical ledge (Figs. 376, 377); embolus largely confined to dorsal side of conductor (Figs. 376, 377).

Female. Total length 5.77 ± 0.90 mm; carapace 2.44 ± 0.21 mm long, 1.64 ± 0.16 mm wide; femur II 1.28 ± 0.12 long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.09, PME 0.09, PLE 0.06, AME–AME 0.07, AME–ALE 0.03, PME–PME 0.11, PME–PLE 0.12, ALE–PLE 0.09; median ocular quadrangle 0.26 long, 0.22 wide at front, 0.29 wide at back. Coloration as

in male. Epigynum narrowly rectangular (Fig. 379); spermathecae large, nearly touching anteriorly (Fig. 380).

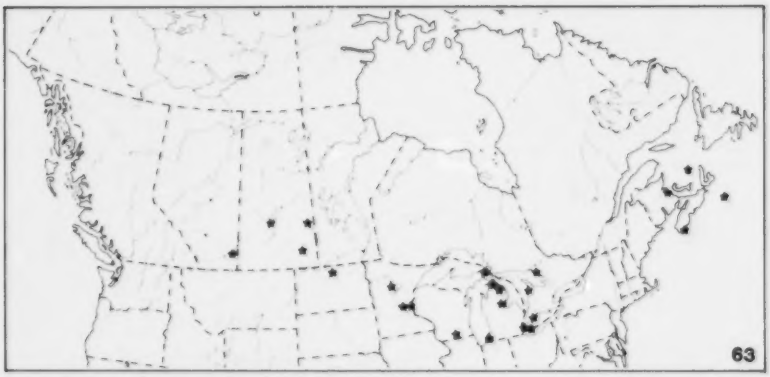
Comments. Specimens of *S. ocellatus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: abdomen with paired white spots in space between anterior and middle bands, retrolateral tibial apophysis with subapical ledge, and epigynum narrowly rectangular.

Range. Alberta to Nova Scotia, south to Texas and Georgia.



Figs. 375–380. Structures of *Sergiolus ocellatus*. 375, 378, abdomen; 375, dorsal view; 378, ventral view; 376, 377, palpus of male; 376, ventral view; 377, retrolateral view; 379, 380, epigynum and spermathecae; 379, ventral view; 380, dorsal view.

Biology. Mature males have been taken from May to August, mature females from April to September. Specimens have been collected in pin oak stands, prairies, marshes, bogs, and buildings.



Map 63. Collection localities of *Sergiolus ocellatus*.

Sergiolus decoratus Kaston

Figs. 13, 381–386; Map 64

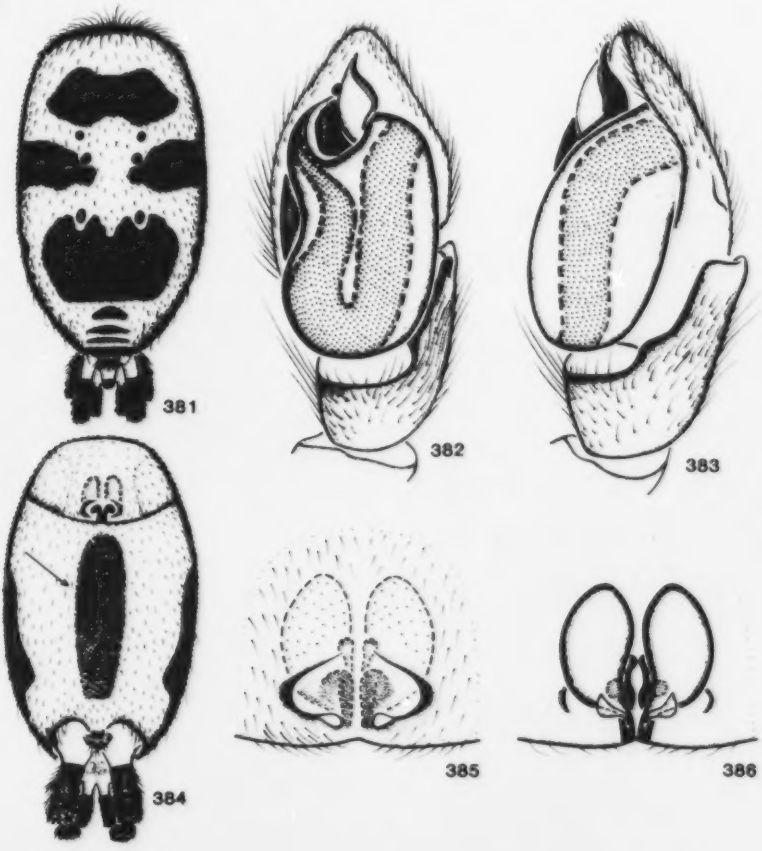
Sergiolus decoratus Kaston, 1945:2, figs. 17–19; 1948:363, figs. 1264 (pl. 66), 2121, 2122 (pl. 142); Platnick and Shadab 1981:19, figs. 42–47.

Male. Total length 4.18 ± 0.41 mm; carapace 1.90 ± 0.18 mm long, 1.26 ± 0.10 mm wide; femur II 1.09 ± 0.09 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.05, PME 0.07, PLE 0.05, AME–AME 0.04, AME–ALE 0.01, PME–PME 0.07, PME–PLE 0.07, ALE–PLE 0.09; median ocular quadrangle 0.22 long, 0.14 wide at front, 0.22 wide at back. Carapace uniform in color; femora I and II darkened; tibiae and basitarsi IV with dark ring at tip; abdomen with anterior white band, with two middle bands, and with posterior band (Fig. 381); venter pale, with dark midstripe (Fig. 384). Retrolateral tibial apophysis stout, with broad truncate tip truncate (Figs. 382, 383); embolus rather slender, somewhat sinuous (Fig. 383).

Female. Total length 4.65–7.43 mm; carapace 2.07–2.99 mm long, 1.33–1.88 mm wide; femur II 1.12–1.55 mm long (eight specimens measured). Eye sizes and distances between them (in millimetres): AME 0.05, ALE 0.06, PME 0.06, PLE 0.07, AME–AME 0.06, AME–ALE 0.04, PME–PME 0.12, PME–PLE 0.11, ALE–PLE 0.11; median ocular

quadrangle 0.21 long, 0.15 wide at front, 0.24 wide at back. Coloration as in male. Epigynum somewhat onion-shaped, with distinct rounded lateral margins (Fig. 385); spermathecae nearly touching (Fig. 386).

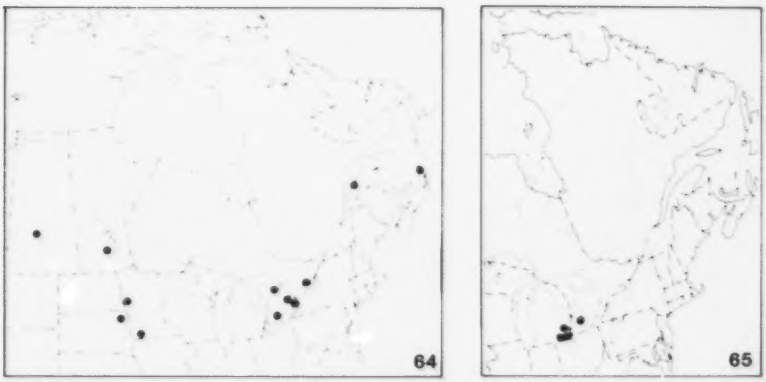
Comments. Individuals of *S. decoratus* are distinguished from those of the other Canadian species of *Sergiolus* by the dark midstripe on the abdominal venter, by the broadly truncate and smooth tip on the retrolateral tibial apophysis, and by the onion-shaped epigynum having distinct and rounded lateral margins.



Figs. 381–386. Structures of *Sergiolus decoratus*. 381, 384, abdomen; 381, dorsal view; 384, ventral view; 382, 383, palpus of male; 382, ventral view; 383, retrolateral view; 385, 386, epigynum and spermathecae; 385, ventral view; 386, dorsal view.

Range. Saskatchewan, southern Ontario, and Nova Scotia, south to Illinois and Massachusetts.

Biology. Mature males and females have been taken from May to August. They were collected in meadows, tall grass, prairies, and grassy beaches.



Maps 64, 65. Collection localities of *Sergiolus* spp. 64, *S. decoratus*; 65, *S. unimaculatus*.

Sergiolus unimaculatus Emerton

Figs. 387–392; Map 65

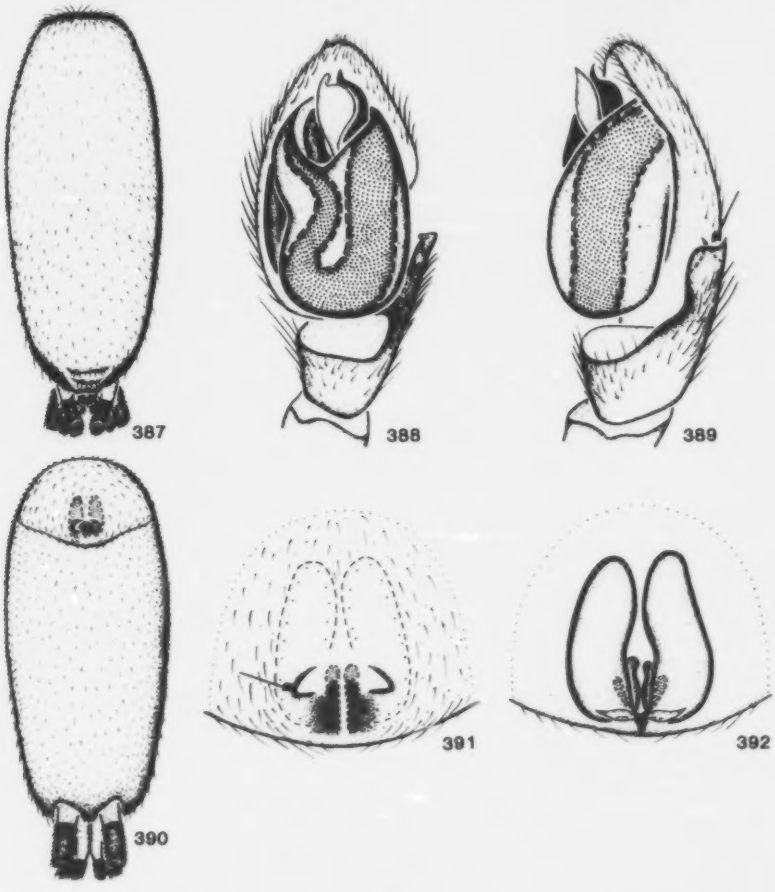
Sergiolus unimaculatus Emerton, 1915:142; Kaston 1948:363, figs. 1260, 1261 (pl. 66); Platnick and Shadab 1981:23, figs. 54–59.

Male. Total length 4.08 ± 0.44 mm; carapace 1.80 ± 0.16 mm long, 1.15 ± 0.09 mm wide; femur II 0.98 ± 0.11 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.06, PLE 0.06, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.09, PME–PLE 0.07, ALE–PLE 0.06; median ocular quadrangle 0.22 long, 0.18 wide at front, 0.21 wide at back. Carapace and legs orange, unmarked. Abdomen elongated and slender, approximately twice as long as wide, gray, brown, or black, with middle transverse white band interrupted at midline (Fig. 387); venter unmarked (Fig. 390). Retrolateral tibial apophysis broad at tip, with minute pointed dorsal spur (Fig. 389); embolus rather small, pointed (Fig. 388).

Female. Total length 5.80 ± 1.38 mm; carapace 2.35 ± 0.46 mm long, 1.49 ± 0.33 mm wide; femur II 1.24 ± 0.27 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME

0.09, ALE 0.09, PME 0.08, PLE 0.09, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.13, PME–PLE 0.13, ALE–PLE 0.12; median ocular quadrangle 0.31 long, 0.27 wide at front, 0.30 wide at back. Coloration as in male. Epigynum small, forming paired triangles (Fig. 391); spermathecae nearly touching (Fig. 392).

Comments. Individuals of *S. unimaculatus* are distinguished from those of the other Canadian species of *Sergiolus* by the elongated and slender abdomen, by the broad retrolateral tibial apophysis that has a minute dorsal spur, and by the triangular lateral areas of the epigynum.



Figs. 387–392. Structures of *Sergiolus unimaculatus*. 387, 390, abdomen; 387, dorsal view; 390, ventral view; 388, 389, palpus of male; 388, ventral view; 389, retrolateral view; 391, 392, epigynum and spermathecae; 391, ventral view; 392, dorsal view.

Range. Michigan and southernmost Ontario to Massachusetts, south to Florida.

Biology. Mature males have been taken from March to August and in October, mature females from April to August and in November. Most specimens for which habitat data are available were collected on sand dunes or on salt marshes.

Sergiolus bicolor Banks

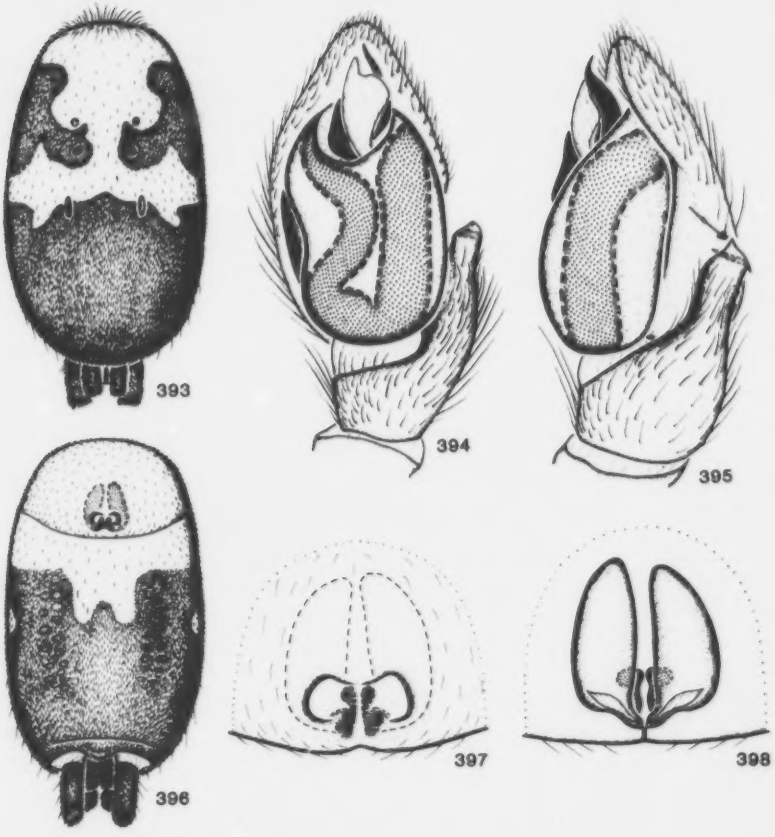
Figs. 393–398; Map 62

Sergiolus bicolor Banks, 1900:96; Platnick and Shadab 1981:26, figs. 3, 4, 66-71.
Sergiolus bellior Chamberlin, 1936*b*:4, fig. 17.

Male. Total length 4.22 ± 0.42 mm; carapace 1.92 ± 0.16 mm long, 1.20 ± 0.08 mm wide; femur II 1.06 ± 0.12 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.07, PLE 0.07, AME–AME 0.06, AME–ALE 0.01, PME–PME 0.08, PME–PLE 0.08, ALE–PLE 0.11; median ocular quadrangle 0.24 long, 0.18 wide at front, 0.22 wide at back. Carapace, sternum, coxa I, trochanter I, femora I–IV, tibia IV, and basitarsus IV darkened; abdomen dark, with mesally interrupted transverse white band (Fig. 393); carapace, sternum, and most or all leg segments of southern specimens lighter; venter with extensive white area anteriorly (Fig. 396). Retrolateral tibial apophysis stout, somewhat sinuous, rather broad at tip, with small subapical ledge (Fig. 395); embolus rather slender, tapered to fine tip (Fig. 394).

Female. Total length 5.96 ± 0.64 mm; carapace 2.58 ± 0.17 mm long, 1.58 ± 0.12 mm wide; femur II 1.28 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.07, ALE 0.08, PME 0.06, PLE 0.07, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.13, PME–PLE 0.12, ALE–PLE 0.11; median ocular quadrangle 0.25 long, 0.22 wide at front, 0.25 wide at back. Coloration as in male. Epigynum rectangular, with anterior margin arched posteriorly (Fig. 397); spermathecae nearly touching throughout their length (Fig. 398).

Comments. Individuals of *S. bicolor* are distinguished from those of the other Canadian species of *Sergiolus* by the broadly pointed tip and submarginal ledge on the retrolateral tibial apophysis and by the epigynum, which is rectangular and has the anterior margin arched posteriorly.



Figs. 393–398. Structures of *Sergiolus bicolor*. 393, 396, abdomen; 393, dorsal view; 396, ventral view; 394, 395, palpus of male; 394, ventral view; 395, retrolateral view; 397, 398, epigynum and spermathecae; 397, ventral view; 398, dorsal view.

Range. Manitoba to Michigan, south to Texas and Florida.

Biology. Mature males have been taken from April to August, mature females in January (in Georgia) and from April to September. The recorded habitats include dry seed pods of *Penstemon grandiflorus* Nutt., empty galls, grasses, shrubs, and various understory plants in moist forests.

Genus *Nodocion* Chamberlin

Spiders of the genus *Nodocion*, like those of most gnaphosid genera, are poorly known biologically. Their main habitats in the west appear to be wooded canyons, where stones or fallen trees provide shelter from heat and aridity. Specimens of the sole eastern species, *N. floridanus* (Banks), have been collected in such places as crevices under loose tree bark or wasps' nests, where the wasps had stored them and laid their eggs on the paralyzed bodies. Coloration tends to be dull, comprising mainly tones of brown and gray, and can therefore not be used to identify the species; only the external genitalia are useful for that purpose.

The species of *Nodocion* fall into two informal groups based on structures of the male palpus. In *N. mateonus* Chamberlin and *N. rufithoracicus* Worley the retrolateral tibial apophysis is flattened and blade-like, whereas in *N. eclecticus* Chamberlin, *N. voluntarius* (Chamberlin), and *N. floridanus* it is folded. In the second group the palpal femur is unique in possessing a swelling on its ventral surface. Females of these groups apparently do not share any unique characters.

Description. Total length 3.4–11.3 mm. Carapace ovoid, light brown except blackish between anterior median eyes, and with erect or recumbent black setae. From front, anterior row of eyes straight and posterior row procurved; from above, anterior row of eyes recurved and posterior row straight; anterior median eyes round, dark; posterior median eyes irregularly ovoid; lateral eyes ovoid and light; median eyes larger than lateral eyes, with posterior medians usually largest; anterior median eyes separated by approximately their maximum width from each other and by less than half their width from anterior lateral eyes; posterior median eyes separated by their width or less from each other and by less than their width from posterior lateral eyes; lateral eyes of each side separated by their width or less from each other; median ocular quadrangle approximately square. Chelicerae dark brown, with promarginal carina, and lacking retromarginal teeth. Palp-coxal lobes long, sinuous laterally. Sternum long, narrow. Legs light brown, in order of length 4123; typical macrosetal pattern: femora I, II d1-1-1, p0-0-1; III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-0-1, r0-0-1; patella III p0-1-0, r0-1-1; tibiae I, II v0-0-1; III p2-1-1, v2-2-2, r0-1-1; IV p1-1-1, v2-2-2, r0-1-1; basitarsus II v2-0-0, III p1-2-2, v2-0-2, r0-1-2; IV p1-2-2, v2-2-2, r1-2-2; trochanters with shallow notch. Abdomen brownish gray, with large scutum in males, sometimes with patch of short stiff setae ventrally (Figs. 22, 23). Palpus of male with large retrolateral tibial apophysis resting in shallow excavation in surface of cymbium (Figs. 399, 406, 410, 418); femur sometimes with ventral swelling (Figs. 403–405); embolus short, twisted around conductor, and situated terminally on genital bulb; median apophysis small, hooked; conductor conspicuous, pale (Figs. 399, 406, 410, 418). Epigynum with distinct anterior margin arching posteriorly to various degrees according to species (Figs. 401, 408, 412, 416); median septum usually rather small,

either triangular or rectangular; copulatory tubes not visible; spermathecae large, kidney-shaped, usually nearly touching, with paired small knobbed spermathecal organs in space between them (Figs. 409, 413, 417).

Comments. Members of the genus *Nodocion* are distinguished from those of the other genera of Canadian gnaphosids except *Sergiolus* by the following combination of characters: cheliceral promargin with a carina and retromargin without teeth; embolus twisted around the conductor, which is soft and pale; and spermathecae large and kidney-shaped, with paired knobbed spermathecal organs lying between them. The lack of abdominal bands distinguishes representatives of *Nodocion* from those of *Sergiolus* and of the European genus *Poecilochroa*.

The genus *Nodocion* is restricted to North America and comprises six species (Platnick and Shadab 1980*a*). Five species occur or are assumed to occur in Canada.

Key to species of *Nodocion*

1. Male 2
   Female 6

2(1). Palpal femur with ventral swelling (Figs. 403–405) 3
   Palpal femur lacking ventral swelling 5

3(2). Retrolateral tibial apophysis with dorsally directed spur near tip (Fig. 400) ..... ***eclecticus*** **Chamberlin** (p. 256)
   Retrolateral tibial apophysis lacking spur 4

4(3). Venter of abdomen with patch of short stiff setae (Figs. 22, 23) ..... ***floridanus*** **(Banks)** (p. 259)
   Venter of abdomen lacking patch of short stiff setae ..... ***voluntarius*** **(Chamberlin)** (p. 260)

5(2). Conductor only somewhat constricted at base (ventral view, Fig. 414) ..... ***rufithoracicus*** **Worley** (p. 262)
   Conductor strongly constricted at base (ventral view, Fig. 418) ..... ***mateonus*** **Chamberlin** (p. 263)

6(1). Anterior epigynal margin one-half or less width of spermathecae taken together (Figs. 401, 412) 7
   Anterior epigynal margin distinctly more than one-half width of spermathecae taken together (Figs. 408, 416, 420) 8

7(6). Anterior epigynal margin strongly recurved (Fig. 401) ..... ***eclecticus* Chamberlin** (p. 256)

Anterior epigynal margin weakly recurved (Fig. 412) ..... ***voluntarius* (Chamberlin)** (p. 260)

8(6). Abdominal venter with conspicuous patch of short stiff setae (Figs. 22, 23). Epigynum usually with pair of mesally directed prominences (Fig. 408) ..... ***floridanus* (Banks)** (p. 259)

Abdominal venter lacking patch of short stiff setae. Epigynum lacking mesally directed prominences 9

9(8). Median septum large, rectangular (Fig. 416) ..... ***rufithoracicus* Worley** (p. 262)

Median septum smaller, triangular (Fig. 420) ..... ***mateonus* Chamberlin** (p. 263)

Clé des espèces de *Nodocion*

1. Mâle 2

Femelle 6

2(1). Fémur palpal à renflement ventral (fig. 403, 404, 405) 3

Fémur palpal sans renflement ventral 5

3(2). Apophyse tibiale rétrolatérale munie d'un éperon orienté dorsalement près de l'extrémité (fig. 400) ..... ***eclecticus* Chamberlin** (p. 256)

Apophyse tibiale rétrolatérale dépourvue d'éperon 4

4(3). Face ventrale de l'abdomen pourvue d'une plaque de soies courtes et raides (fig. 22, 23) ..... ***floridanus* (Banks)** (p. 259)

Face ventrale de l'abdomen dépourvue de plaque de soies courtes et raides ..... ***volontarius* (Chamberlin)** (p. 260)

5(2). Conducteur seulement un peu resserré à la base (vue ventrale, fig. 414) ..... ***rufithoracicus* Worley** (p. 262)

Conducteur fortement resserré à la base (vue ventrale, fig. 418) ..... ***mateonus* Chamberlin** (p. 263)

6(1). Marge épigynale antérieure dont la largeur correspond à la moitié ou moins de celle des spermathèques réunies (fig. 410, 412) 7

Marge épigynale antérieure dont la largeur correspond nettement à plus de la moitié de celle des spermathèques réunies (fig. 408, 416, 420) 8

7(6). Marge épigynale antérieure fortement recourbée (fig. 401) ... . ***eclecticus*** **Chamberlin** (p. 256)

Marge épigynale antérieure faiblement recourbée (fig. 412) ... . ***volontarius*** **(Chamberlin)** (p. 260)

8(6). Face ventrale de l'abdomen pourvue d'une plaque voyante de soies courtes et raides (fig. 22, 23). Épigyne généralement munie d'une paire de proéminences orientées mésalement (fig. 408) ..... ***floridanus*** **(Banks)** (p. 259)

Face ventrale de l'abdomen dépourvue de plaque de soies courtes et raides. Épigyne dépourvue de proéminences orientées mésalement 9

9(8). Septum médian grand, rectangulaire (fig. 416) .... ***rufithoracicus*** **Worley** (p. 262)

Septum médian plus petit, triangulaire (fig. 420) .... ***mateonus*** **Chamberlin** (p. 263)

Nodocion eclecticus Chamberlin

Figs. 399–403; Map 66

Nodocion eclecticus Chamberlin, 1924:613, fig. 48; Platnick and Shadab 1980*a*:10, figs. 13–16, 31.

Herpyllus atopophysis Chamberlin, in Chamberlin and Gertsch, 1928:176.

Liodrassus arizonicus Chamberlin, 1936*a*:4, figs. 4–6.

Liodrassus metalleus Chamberlin and Gertsch, 1940:5, fig. 5.

Male. Total length 5.45 ± 0.56 mm; carapace 2.54 ± 0.19 mm long, 1.74 ± 0.15 mm wide; femur II 1.62 ± 0.13 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.14, ALE 0.10, PME 0.13, PLE 0.13, AME–AME 0.10, AME–ALE 0.02, PME–PME 0.09, PME–PLE 0.08, ALE–PLE 0.08; median ocular quadrangle 0.38 long, 0.38 wide at front, 0.35 wide at back. Palpal femur with small ventral swelling (Fig. 403); retrolateral tibial apophysis with dorsally directed spur near tip (Fig. 400); embolus broad at base, tapered to fine curved tip; conductor large, broad (Fig. 399).

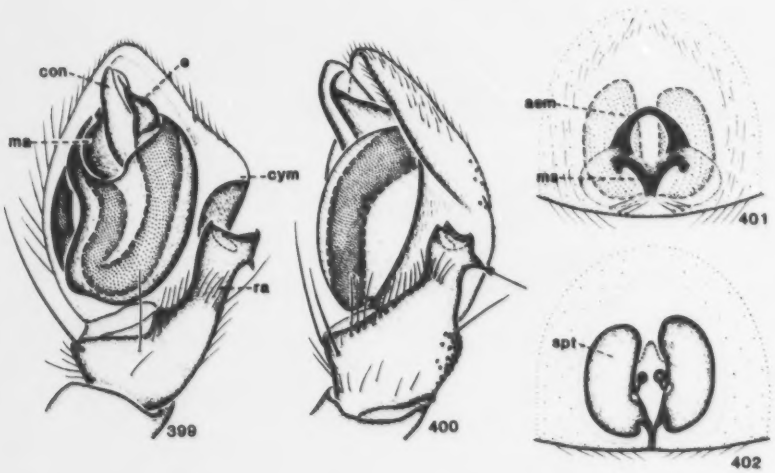
Female. Total length 8.45 ± 1.34 mm; carapace 3.68 ± 0.44 mm long, 2.44 ± 0.29 mm wide; femur II 2.13 ± 0.23 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME

0.13, ALE 0.12, PME 0.15, PLE 0.13, AME–AME 0.16, AME–ALE 0.06, PME–PME 0.16, PME–PLE 0.13, ALE–PLE 0.16; median ocular quadrangle 0.49 long, 0.41 wide at front, 0.45 wide at back. Epigynum rather narrow, with anterior margin strongly recurved (Fig. 401); spermathecae separated by approximately one-half their width (Fig. 402).

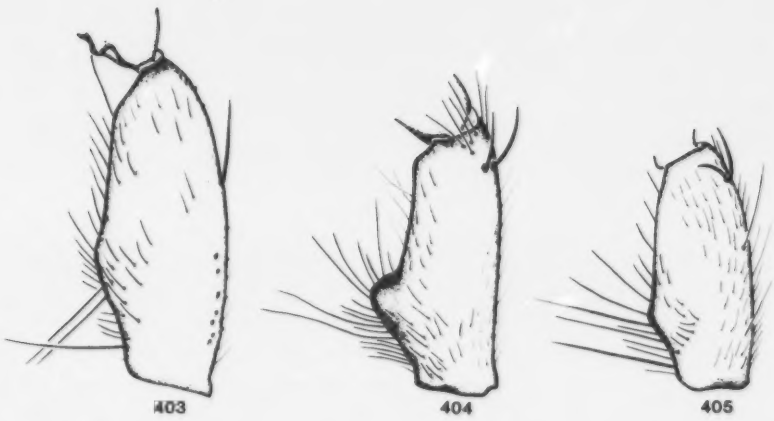
Comments. Individuals of *N. eclecticus* are distinguished from those of other Canadian species of *Nodocion* by the following combination of characters: male palpal femur with ventral swelling, retrolateral tibial apophysis with dorsally directed spur near tip, and anterior epigynal margin strongly recurved and a little wider than space between spermathecae.

Range. Interior British Columbia south to Arizona, New Mexico, Texas, and Baja California, Mexico.

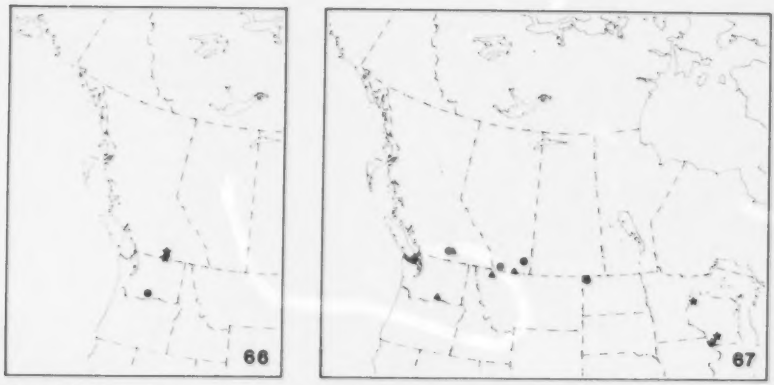
Biology. Adult males and females of *N. eclecticus* have been taken in nearly every month of the year, but in the northern parts of the range most specimens were recorded from March to September. Collections have been made in pitfall traps, under stones and tree bark, and in the nests of birds and pack rats, at elevations up to 4000 m.



Figs. 399–402. Genitalia of *Nodocion eclecticus*. 399, 400, palpus of male; 399, ventral view; 400, retrolateral view; 401, 402, epigynum and spermathecae; 401, ventral view; 402, dorsal view. *aem*, anterior epigynal margin; *con*, conductor; *cym*, cymbium; *e*, embolus; *ma*, median apophysis; *ms*, median septum; *ra*, retrolateral tibial apophysis; *spt*, spermatheca.



Figs. 403–405. Palpal femora of male *Nodocion* spp., lateral view; 403, *N. eclecticus*; 404, *N. voluntarius*; 405, *N. floridanus*.



Maps 66, 67. Collection localities of *Nodocion* spp. 66, *N. eclecticus* (★), *N. mateonus* (●); 67, *N. floridanus* (★), *N. voluntarius* (▲), and *N. rufithoracicus* (●).

Nodocion floridanus (Banks)

Figs. 22, 23, 405–409; Map 67

Prosthesima floridana Banks, 1896*a*:61.
Liodrassus deceptus Gertsch and Mulaik, 1936:12, figs. 22–24.
Liodrassus floridicolens Chamberlin, 1936*b*:3, fig. 16.
Nodocion melanie Levi, 1951:23, figs. 20–22.
Nodocion floridanus: Platnick and Shadab 1977:6; 1980*a*:14, figs. 21–26, 33.

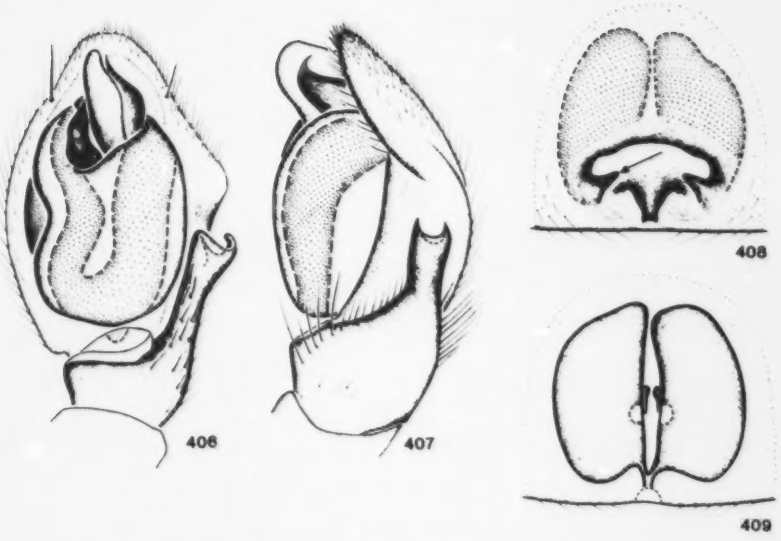
Male. Total length 4.96 ± 0.62 mm; carapace 2.31 ± 0.26 mm long, 1.61 ± 0.19 mm wide; femur II 1.38 ± 0.19 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.09, PME 0.10, PLE 0.10, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.07, PME–PLE 0.06, ALE–PLE 0.06; median ocular quadrangle 0.32 long, 0.27 wide at front, 0.28 wide at back. Abdomen with patch of short stiff setae anterior to spinnerets (Figs. 22, 23). Palpal femur with small ventral swelling (Fig. 405); retrolateral tibial apophysis without distal spur and with rounded dorsal fold (Fig. 407); embolus broad at base and tapered to fine curved tip; conductor large, broad (Fig. 406).

Female. Total length 6.96 ± 1.50 mm; carapace 2.84 ± 0.40 mm long, 1.92 ± 0.22 mm wide; femur II 1.56 ± 0.23 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.14, ALE 0.10, PME 0.13, PLE 0.12, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.11, PME–PLE 0.08, ALE–PLE 0.10; median ocular quadrangle 0.43 long, 0.37 wide at front, 0.36 wide at back. Abdomen with patch of short stiff setae as in male. Epigynum broad, with anterior atrial margin somewhat recurved, usually with pair of mesally directed prominences (Fig. 408); spermathecae large, virtually touching (Fig. 409).

Comments. Individuals of *N. floridanus* are distinguished from those of other Canadian species of *Nodocion* by the presence of a patch of short stiff setae on the abdominal venter, anterior to the spinnerets; this character is present in adults of both sexes. The ventral swelling on the male palpal femur is of additional diagnostic value.

Range. Wisconsin to Connecticut, south to Arizona, Texas, and Florida.

Biology. Mature males of *N. floridanus* have been collected from April to June and from October to December; mature females have been collected in every month except September, November, and December. Recorded habitats include crevices under tree bark, bird nests, and wasps' nests, where they were stored as provision for the wasps' young.



Figs. 406–409. Genitalia of *Nodocion floridanus*. 406, 407, palpus of male; 406, ventral view; 407, retrolateral view; 408, 409, epigynum and spermathecae; 408, ventral view; 409, dorsal view.

Nodocion voluntarius (Chamberlin)

Figs. 404, 410–413; Map 67

Scotophaeus voluntarius Chamberlin, 1919*a*:5, fig. 3 (pl. 2).
Liodrassus florissantus Chamberlin, 1936*a*:5, figs. 7–9.
Liodrassus carrvillus Chamberlin and Ivie, 1941:21, figs. 27–29.
Nodocion voluntarius: Ubick and Roth 1973:6; Platnick and Shadab 1980*a*:12, figs. 17–20, 32.

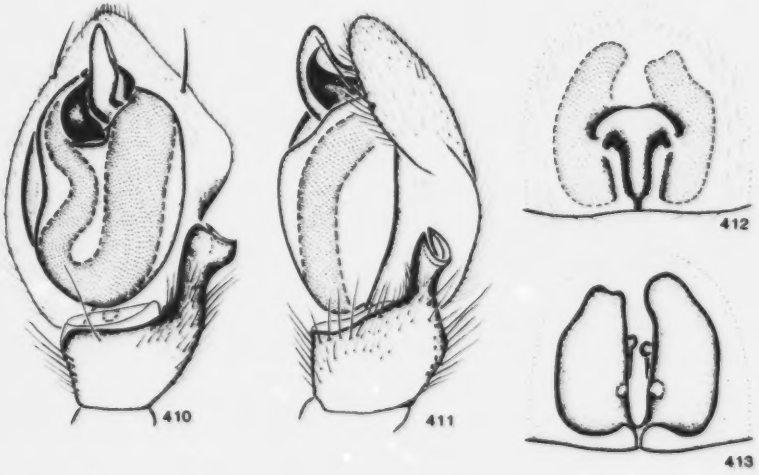
Male. Total length 5.51 ± 0.48 mm; carapace 2.60 ± 0.26 mm long, 1.80 ± 0.17 mm wide; femur II 1.58 ± 0.18 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.10, PME 0.12, PLE 0.12, AME–AME 0.11, AME–ALE 0.05, PME–PME 0.11, PME–PLE 0.08, ALE–PLE 0.09; median ocular quadrangle 0.38 long, 0.33 wide at front, 0.35 wide at back. Palpal femur with large ventral swelling (Fig. 404); retrolateral tibial apophysis lacking dorsally directed spur and deeply folded at tip (Fig. 411); embolus broad at base and tapered to fine curved tip; conductor long, broad (Fig. 410).

Female. Total length 6.87 ± 0.87 mm; carapace 3.14 ± 0.39 mm long, 2.11 ± 0.29 mm wide; femur II 1.70 ± 0.21 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.10, PME 0.13, PLE 0.13, AME–AME 0.13, AME–ALE 0.05, PME–PME 0.13, PME–PLE 0.12, ALE–PLE 0.13; median ocular quadrangle 0.42 long, 0.35 wide at front, 0.39 wide at back. Epigynum rather narrow, with anterior margin weakly recurved (Fig. 412); spermathecae large, irregularly kidney-shaped, narrowly separated (Fig. 413).

Comments. Individuals of *N. voluntarius* are distinguished from those of the other Canadian species of *Nodocion* by the following combination of characters: male palpal femur with large ventral swelling, retrolateral tibial apophysis lacking dorsal spur, abdomen lacking ventral patch of short stiff setae, epigynum narrow, and anterior epigynal margin weakly recurved.

Range. Southern British Columbia and Alberta, south to Mexico.

Biology. Mature males have been taken from April to September, mature females in January and from April to September. Specimens were collected under stones and logs in open country and in rotting logs in coniferous forests.



Figs. 410–413. Genitalia of *Nodocion voluntarius*. 410, 411, palpus of male; 410, ventral view; 411, retrolateral view; 412, 413, epigynum and spermathecae; 412, ventral view; 413, dorsal view.

Nodocion rufithoracicus Worley

Figs. 414–417; Map 67

Nodocion rufithoracica Worley, 1928:620, fig. 3.
Liodrassus petersoni Chamberlin and Gertsch, 1940:7, fig. 8.
Nodocion rufithoracicus: Bonnet 1958:3106; Platnick and Shadab 1980*a*:6, figs. 5–8.

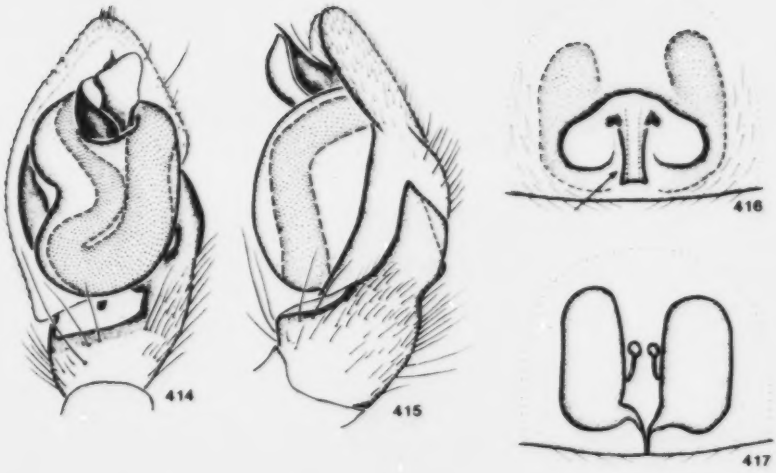
Male. Total length 4.84 ± 0.56 mm; carapace 2.24 ± 0.32 mm long, 1.63 ± 0.20 mm wide; femur II 1.55 ± 0.19 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.08, ALE 0.07, PME 0.12, PLE 0.09, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.04, PME–PLE 0.03, ALE–PLE 0.06; median ocular quadrangle 0.25 long, 0.25 wide at front, 0.28 wide at back. Palpal femur lacking ventral swelling; retrolateral tibial apophysis with flange along dorsal margin and having neither spur nor fold at tip (Fig. 415); embolus rather broad at base and tapered to slender sinuous tip; conductor broad, somewhat constricted at base (Fig. 414).

Female. Total length 6.70 ± 1.42 mm; carapace 2.64 ± 0.27 mm long, 1.86 ± 0.20 mm wide; femur II 1.62 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.10, ALE 0.09, PME 0.13, PLE 0.08, AME–AME 0.10, AME–ALE 0.04, PME–PME 0.07, PME–PLE 0.07, ALE–PLE 0.08; median ocular quadrangle 0.30 long, 0.30 wide at front, 0.33 wide at back. Epigynum broad, with anterior margin moderately recurved and with large rectangular median septum (Fig. 416); spermathecae separated by approximately one-half their width (Fig. 417).

Comments. Individuals of *N. rufithoracicus* are distinguished from those of the other Canadian species of *Nodocion* by the following combination of characters: palpal femur lacking ventral swelling, conductor broad and only somewhat constricted at base, epigynum wide, and median septum large and rectangular.

Range. Southern British Columbia and Alberta, south to California and New Mexico.

Biology. Adult males and females have been collected from April to August. These were found under cattle dung and other debris on the ground in stands of sagebrush and other desert plants.



Figs. 414–417. Genitalia of *Nodocion rufithoracicus*. 414, 415, palpus of male; 414, ventral view; 415, retrolateral view; 416, 417, epigynum and spermathecae; 416, ventral view; 417, dorsal view.

Nodocion mateonus Chamberlin

Figs. 418–421; Map 66

Nodocion mateonus Chamberlin, 1922:154; Platnick and Shadab 1980*a*:5, figs. 1–4.

Male. Total length 4.57 mm; carapace 2.16 mm long, 1.57 mm wide; femur II 1.53 mm long (one specimen measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.09, PME 0.13, PLE 0.10, AME–AME 0.10, AME–ALE 0.04, PME–PME 0.06, PME–PLE 0.05, ALE–PLE 0.05; median ocular quadrangle 0.30 long, 0.29 wide at front, 0.32 wide at back. Palpal femur lacking ventral swelling; retrolateral tibial apophysis long, broad, rather flat, with narrow flange along dorsal margin and with neither spur nor fold at tip (Fig. 419); embolus broad at base and tapered to slender point; conductor broad distally, strongly constricted at base (Fig. 418).

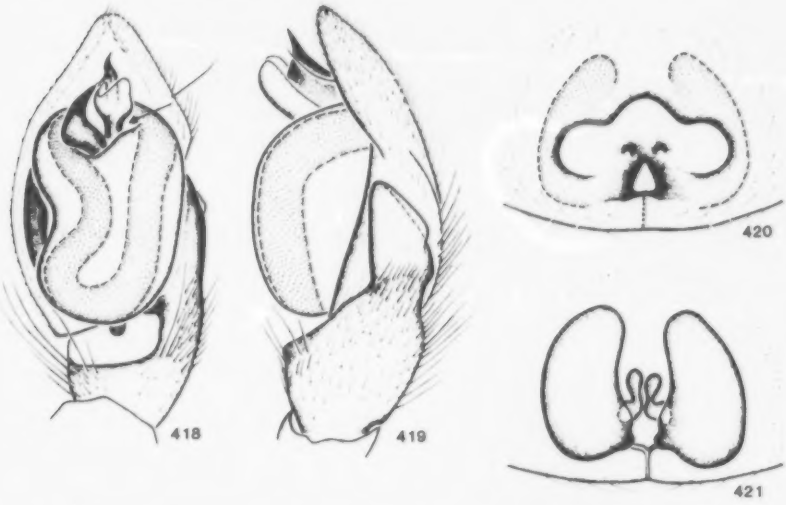
Female. Total length 7.27 ± 0.31 mm; carapace 2.72 ± 0.24 mm long, 1.94 ± 0.19 mm wide; femur II 1.68 ± 0.17 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.10, PME 0.13, PLE 0.11, AME–AME 0.11, AME–ALE 0.04, PME–PME 0.07, PME–PLE 0.08; ALE–PLE 0.08; median ocular quadrangle 0.38 long, 0.33 wide at front, 0.33 wide at back. Epigynum

broad, laterally expanded, with anterior margin recurved and with small triangular median septum (Fig. 420); spermathecae large, kidney-shaped, separated by approximately one-half their width (Fig. 421).

Comments. Individuals of *N. mateonus* are distinguished from those of the other species represented or assumed to be represented in Canada by the following combination of characters: palpal femur lacking ventral swelling, conductor strongly constricted at base, epigynum wide, and median septum small and triangular.

Range. Washington, south to California.

Biology. The only known mature male of *N. mateonus* was collected in May. Mature females have been collected from February to August. Habitat information is not available.



Figs. 418–421. Genitalia of *Nodocion mateonus*. 418, 419, palpus of male; 418, ventral view; 419, retrolateral view; 420, 421, epigynum and spermathecae; 420, ventral view; 421, dorsal view.

Genus *Cesonia* Simon

Spiders of the genus *Cesonia* are swift, agile hunters that are usually found under loose leaf litter on sandy soils. They can be collected in pitfall traps or by the sifting of litter. Individuals held in captivity have been observed to kill and eat other spiders by approaching from behind, pinning the prey's legs to the ground, and delivering a lethal bite to the heart region at the anterior end of the abdomen (V.D. Roth, cited by Platnick and Shadab 1980*b*).

These spiders are unusual among gnaphosids in having distinct dark longitudinal bands on both carapace and abdomen. The banding pattern is species-specific to some extent, and the pigment (or lack of it) resides in both the integument and the associated overlying setae. Other peculiarities of members in this genus are found in the eye arrangement and the external genitalia.

Description. Total length 2.4–9.2 mm. Carapace (Fig. 422) ovoid, strongly narrowed anteriorly, widest between coxae II and III, and pale orange, with pair of broad paramedian dark longitudinal bands and with numerous scale-like light or dark setae. Eyes subequal in size; from above, anterior row of eyes recurved and posterior row of eyes straight (Fig. 422); from front, both rows of eyes somewhat procurved; anterior median eyes circular, dark, separated from each other by their maximum width or more and from anterior lateral eyes by less than half their width; anterior lateral and all posterior eyes ovoid and light, with posterior medians separated from each other by 1.5–2.0 times their width and from posterior lateral eyes by less than their width; anterior lateral eyes separated from posterior lateral eyes by approximately their width; median ocular quadrangle widest posteriorly, as wide as or wider than long. Chelicerae usually with 3 promarginal teeth (the most proximal one smallest) and with a retromarginal denticle. Palp-coxal lobes approximately rectangular. Sternum long, slender. Leg formula 4123; tarsi with scopulae and dense claw tufts; all segments pale orange, sometimes with some segments dark; trochanters I and II lacking notch, III and IV with shallow notch; basitarsi III and IV with indistinct preening brush; macrosetae as follows (with variation): femora I, II d1-1-1, p0-0-1; III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-1-1, r0-0-1; patellae III, IV r0-1-0; tibiae I, II v0-1-1; III d1-0-0, p1-1-1, v1-1-2, r0-1-1; IV d1-0-0, p1-1-1, v1-2-2, r0-1-1; basitarsi II v1-0-0; III p0-1-2, v2-0-1, r0-1-2; IV p1-2-2, v2-2-1, r0-2-2. Abdomen (Figs. 422, 423) pale yellow, with paired broad dark longitudinal bands on dorsum and with narrower dark longitudinal band on each side; male with long orange dorsal scutum. Male palpus (Figs. 424–426) with retrolateral tibial apophysis long, slender, and pointed; male palpus with both membranous conductor and median apophysis long, slender, arising along prolateral margin of genital bulb, and extending beyond tip of genital bulb. Epigynum (Fig. 427) lacking distinct median septum and having copulatory openings that are small, round, situated near posterior margin of epigynum, and sometimes

hooded; spermathecae (Fig. 428) large, bulbous or ovoid, with ear-like protrusions internally and with paired lateral lobes at base.

Comments. The single Canadian member of the genus *Cesonia* is distinguished from those of the other Canadian gnaphosid genera by the paired dark longitudinal body bands; by the widely separated posterior median eyes; by the prolonged embolus, conductor, and median apophysis; and by the ear-like protrusions in the spermathecae.

The genus *Cesonia* comprises 30 species that occur in North and Central America and the Caribbean (Platnick and Shadab 1980*b*). One species occurs in Canada.

Cesonia bilineata (Hentz)

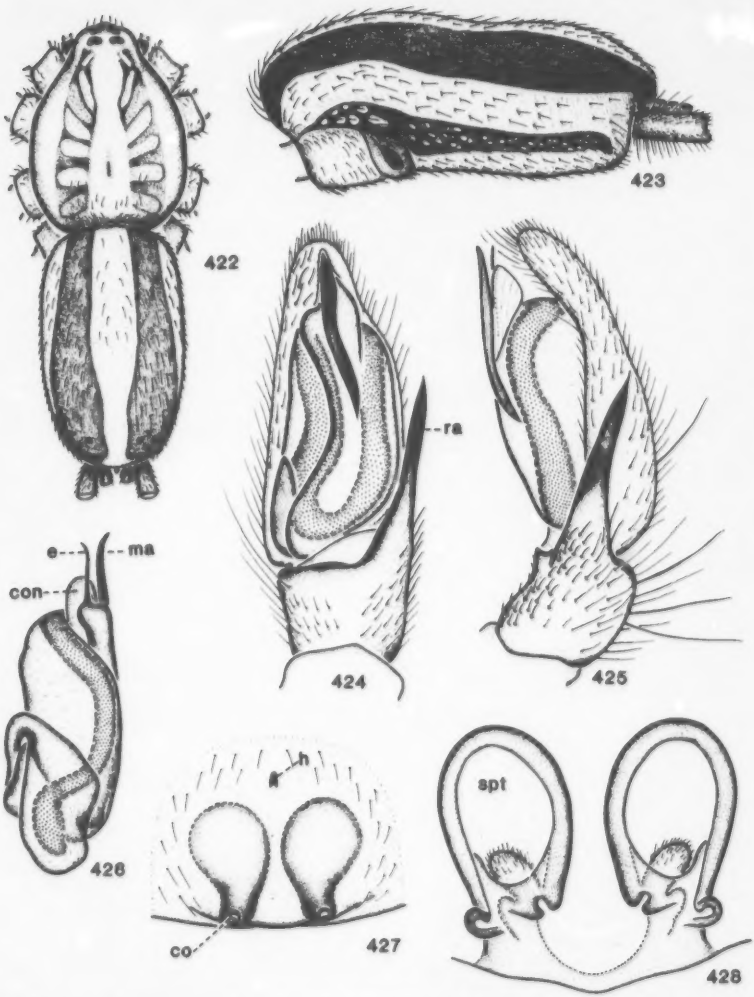
Figs. 422–428; Map 68

Herpyllus bilineatus Hentz, 1847:456, fig. 5 (pl. 24).

Cesonia bilineata: Simon 1893:375; Kaston 1948:348, figs. 1163, 1164 (pl. 60); Platnick and Shadab 1980*b*:342, figs. 1–7.

Male. Total length 3.99 ± 0.42 mm; carapace 1.82 ± 0.21 mm long, 1.41 ± 0.14 mm wide; femur II 1.35 ± 0.10 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.07, PLE 0.05, AME–AME 0.09, AME–ALE 0.02, PME–PME 0.13, PME–PLE 0.04, ALE–PLE 0.07; median ocular quadrangle 0.24 long, 0.22 wide at front, 0.27 wide at back. Carapace with 2 dark longitudinal bands (Fig. 422). Abdomen with 4 dark longitudinal bands (Figs. 422, 423). Retrolateral tibial apophysis long, gradually tapered to fine sharp point (Fig. 424); embolus slender, concealed in ventral view by conductor and median apophysis (Fig. 424), and prolonged distally beyond tip of genital bulb (Fig. 425).

Female. Total length 5.67 ± 1.34 mm; carapace 2.17 ± 0.37 mm long, 1.66 ± 0.24 mm wide; femur II 1.55 ± 0.21 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.06, ALE 0.06, PME 0.06, PLE 0.05, AME–AME 0.08, AME–ALE 0.02, PME–PME 0.12, PME–PLE 0.05, ALE–PLE 0.08; median ocular quadrangle 0.24 long, 0.20 wide at front, 0.24 wide at back. Epigynum with indistinct median septum, with minute hood, and with copulatory openings small, round, and situated near genital groove (Fig. 427); spermathecae large, bulbous, arising at posterior margin of epigynum (Fig. 428).

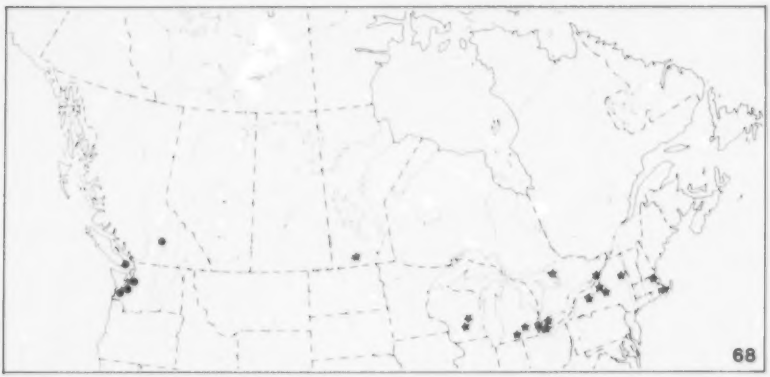


Figs. 422–428. Structures of *Cesonia bilineata*. 422, body, dorsal view; 423, abdomen, lateral view; 424–426, palpus of male; 424, ventral view; 425, retrolateral view; 426, prolateral view; 427, 428, epigynum and spermathecae; 427, ventral view; 428, dorsal view. *co*, copulatory opening; *con*, conductor; *e*, embolus; *h*, hood; *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *spt*, spermatheca.

Comments. Individuals of *C. bilineata* can be distinguished from those of the other Canadian genera of gnaphosids by the characters given to distinguish the genus *Cesonia*.

Range. Manitoba to Massachusetts, south to northern Mexico and Florida.

Biology. Mature males have been taken in every month except February and March, mature females in every month. Specimens have been collected under fallen leaves in pine forests and deciduous forests, on sand dunes, in tall grass prairies, in mesquite stands, and in houses and greenhouses. Kaston (1948) states that in Connecticut *C. bilineata* overwinters as half-grown or penultimate individuals and reports egg sacs from June to mid September; the sac is white, flat, and circular, and is fastened under stones or leaves.



Map 68. Collection localities of *Cesonia bilineata* (★) and *Scotophaeus blackwalli* (●).

Genus *Herpyllus* Hentz

Spiders of the genus *Herpyllus* are small to large and, with few exceptions, brownish or gray. Some members are among the most commonly collected gnaphosids in North America; several occur in houses and outbuildings and one of these, *H. ecclesiasticus* Hentz, named the parson spider because of its exceptional black and white abdominal pattern, is known to bite and to cause mild venomous symptoms (Oehler 1974, Majeski and Durst 1975).

Description. Total length 4.2–17.3 mm. Carapace elongate-ovoid, widest at level between coxae II and III and gradually narrowed anteriorly, usually light brown to dark brown, usually covered with recumbent dark setae. From front, anterior row of eyes recurved and posterior row of eyes somewhat recurved; from above, anterior row of eyes somewhat recurved and posterior row straight; anterior median eyes circular; posterior median eyes irregularly ovoid; lateral eyes ovoid; all eyes approximately equal in size or anterior median eyes largest; anterior median eyes separated from each other by their maximum width or less and from anterior lateral eyes by half their width or less; posterior median eyes separated from each other and from posterior lateral eyes by approximately their width; median ocular quadrangle longer than wide, wider at back than at front. Chelicerae with 3 or 4 promarginal teeth and a retromarginal denticle (Fig. 14). Palp-coxal lobes short to long, sinuous, light brown, with serrulae. Sternum elongate, brownish orange, with long erect setae. Leg formula 4123; segments light brown, lighter distally, with scopulae, with shallow trochanteral notches, and without preening comb; typical macrosetal pattern: femora I, II d1-1-1, p0-1-1; III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-1-1, r0-0-1; patellae III, IV r0-1-0; tibia I v1-1-1; II v0-1p-1p; III d1-0-0, p2-1-1, v2-2-2, r0-1-1; IV d1-0-0, p1-1-1, v2-2-2, r1-1-1; basitarsi I, II v2-0-0; III p1-2-2, v2-0-2, r1-1-2; IV p1-2-2, v2-2-2, r1-2-2. Abdomen brown to dark gray, sometimes with pattern of black and white (Figs. 2, 3); males with brownish orange scutum. Male palpus (Figs. 429, 433, 437) with retrolateral tibial apophysis usually long, slender, essentially straight but sometimes shorter and strongly curved; embolus long, broad throughout much of its length, tapered apically, arising at base of genital bulb, and extending to tip; median apophysis long, slender, rod-like or hair-like, usually oriented approximately parallel to embolus. Epigynum (Figs. 431, 435, 439) with shallow depression defined by lateral margins, sometimes by anterior or posterior margins, and sometimes by both anterior and posterior margins; spermathecae large, kidney-shaped or smoothly ovoid, nearly touching, with posterior ducts (Figs. 432, 436, 440).

Comments. Males of *Herpyllus* spp. are recognized by their long broad embolus and their straight rod-like or hair-like median apophysis. Females closely resemble those of the genera *Nodocion*, *Cesonia*,

Litopyllus, and *Sergiolus* but can be distinguished from *Nodocion* by the possession of a retromarginal denticle on the chelicerae, from *Cesonia* and *Litopyllus* by the approximately equal spacing of the posterior eyes, and from *Sergiolus* by the much larger eyes.

The genus *Herpyllus* is restricted to North America and comprises 25 species (Platnick and Shadab 1977). Three species occur in Canada.

Key to species of *Herpyllus*

1. Male 2

   Female 4

2(1). Retrolateral tibial apophysis long, essentially straight, with tip minutely bifid (Figs. 433, 434, 438) 3

   Retrolateral tibial apophysis shorter, strongly curved, with tip broadly bifid (Fig. 429) ..... ***hesperolus* Chamberlin** (p. 271)

3(2). Seminal duct narrowly looped at base of genital bulb (Fig. 433) ..... ***ecclesiasticus* Hentz** (p. 273)

   Seminal duct more broadly looped at base of genital bulb (Fig. 437) ..... ***propinquus* (Keyserling)** (p. 275)

4(1). Epigynum with only lateral margins distinct (Figs. 435, 439); spermathecae kidney-shaped (Fig. 436, 44) 5

   Epigynum with lateral and posterior margins distinct (Fig. 431); spermathecae plump and straight (Fig. 432) ..... ***hesperolus* Chamberlin** (p. 271)

5(4). Epigynum with short ovoid posterior ducts (Fig. 435) ..... ***ecclesiasticus* Hentz** (p. 273)

   Epigynum with longer angled posterior ducts (Fig. 439) ..... ***propinquus* (Keyserling)** (p. 275)

Clé des espèces d'*Herpyllus*

1. Mâle 2

   Femelle 4

2(1). Apophyse tibiale rétrolatérale longue, essentiellement droite, dont l'extrémité est finement bifide (fig. 433, 434, 438) ... 3

Apophyse tibiale rétrolatérale plus courte, fortement courbée, dont l'extrémité est largement bifide (fig. 429) .... ***hesperolus*** **Chamberlin** (p. 271)

3(2). Canal séminal étroitement enroulé à la base du bulbe génital (fig. 433) ..... ***ecclesiasticus*** **Hentz** (p. 273)

Canal séminal plus largement enroulé à la base du bulbe génital (fig. 437) ..... ***propinquus*** **(Keyserling)** (p. 275)

4(1). Épigyne dont seules les marges latérales sont distinctes (fig. 435, 439); spermathèques en forme de rein (fig. 436, 440) 5

Épigyne dont les marges latérales et postérieures sont distinctes (fig. 431); spermathèques dodues et droites (fig. 432) .... ***hesperolus*** **Chamberlin** (p. 271)

5(4). Épigyne pourvue de canaux postérieurs courts et ovoïdes (fig. 435) ..... ***ecclesiasticus*** **Hentz** (p. 273)

Épigyne pourvue de canaux postérieurs plus longs et anguleux (fig. 439) ..... ***propinquus*** **(Keyserling)** (p. 275)

Herpyllus hesperolus Chamberlin

Figs. 429–432; Map 69

Prosthesima valida Banks, 1896*b*:62.

Scotophaeus validus: Simon 1914:114.

Herpyllus hesperolus Chamberlin, in Chamberlin and Gertsch, 1928:176. New name for *Prosthesima valida* Banks, preoccupied in genus *Scotophaeus*; Platnick and Shadab 1977:23, figs. 63–68.

Sergiolus lesserti Schenkel, 1950:42.

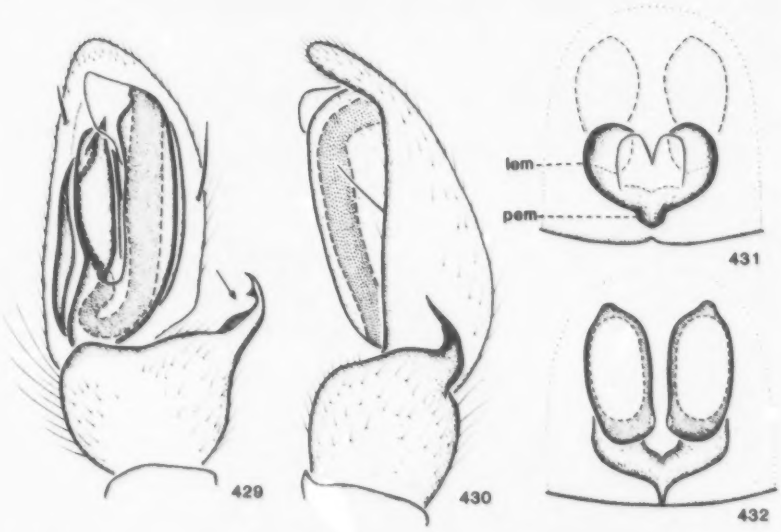
Male. Total length 6.53 ± 0.62 mm; carapace 2.94 ± 0.27 mm long, 2.30 ± 0.15 mm wide; femur II 2.27 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.14, ALE 0.14, PME 0.14, PLE 0.15, AME–AME 0.13, AME–ALE 0.03, PME–PME 0.13, PME–PLE 0.15, ALE–PLE 0.12; median ocular quadrangle 0.48 long, 0.41 wide at front, 0.41 wide at back. Retrolateral tibial apophysis short, strongly tapered and curved, broadly bifid at tip (Figs. 429, 430); embolus long, broad, tapered abruptly at tip, and with slender arm of seminal duct visible throughout its length; median apophysis straight, hair-like, lying approximately parallel to embolus, and somewhat shorter than embolus (Fig. 429).

Female. Total length 8.78 ± 1.42 mm; carapace 3.45 ± 0.46 mm long, 2.66 ± 0.32 mm wide; femur II 2.46 ± 0.27 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.14, ALE 0.12, PME 0.14, PLE 0.13, AME–AME 0.14, AME–ALE 0.04, PME–PME 0.14, PME–PLE 0.17, ALE–PLE 0.14; median ocular quadrangle 0.52 long, 0.41 wide at front, 0.41 wide at back. Epigynum with distinct lateral and posterior margins (Fig. 431); spermathecae large, plump, ovoid, with nipple-like anterior tips (Fig. 432).

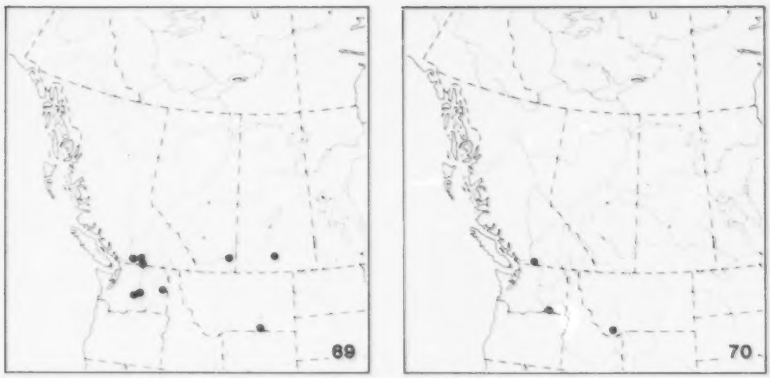
Comments. Individuals of *H. hesperolus* are distinguished from those of the other Canadian species in the genus by the retrolateral tibial apophysis short, curved, broadly bifid; by the possession of both lateral and posterior epigynal margins; and by the plump ovoid spermathecae.

Range. Interior British Columbia to southern Saskatchewan, south to Baja California and western Texas.

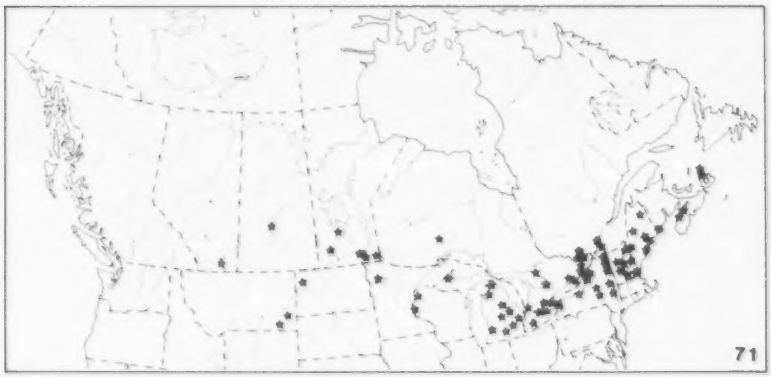
Biology. Mature males and females have been taken year round. Specimens have been collected under stones and in houses, and are associated with sagebrush, juniper, ephedra, manzanita, and yucca.



Figs. 429–432. Genitalia of *Herpyllus hesperolus*. 429, 430, palpus of male; 429, ventral view; 430, retrolateral view; 431, 432, epigynum and spermathecae; 431, ventral view; 432, dorsal view. *lem*, lateral epigynal margin; *pem*, posterior epigynal margin.



Maps 69, 70. Collection localities of *Herpyllus* spp. 69, *H. hesperolus*; 70, *H. propinquus*.



Map 71. Collection localities of *Herpyllus ecclesiasticus*.

Herpyllus ecclesiasticus Hentz

Figs. 2, 3, 14, 433–436; Map 71

Herpyllus ecclesiasticus Hentz, 1832:102; Platnick and Shadab 1977:7, figs. 1-8.

Drassus vasifer Walckenaer, 1837:620.

Prosthesima bimaculata Keyserling, 1887:433, fig. 9 (pl. 6).

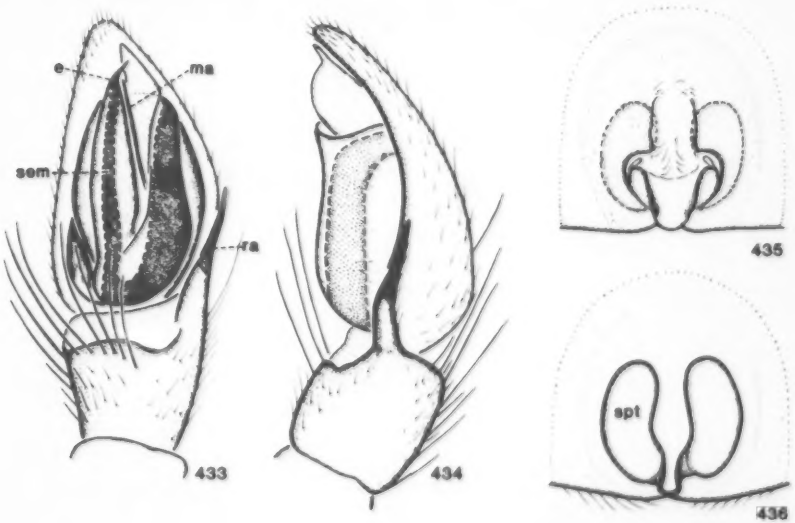
Herpyllus cratus Chamberlin, 1922:150.

Herpyllus vasifer: Kaston 1948:349, figs. 1165–1169 (pl. 60).

Zelotes bryantae Roewer, 1951:444. New name for *Prosthesima bimaculata* Keyserling, preoccupied when transferred to *Zelotes* by Petrunkevitch (1911:148).

Male. Total length 5.36 ± 0.73 mm; carapace 2.53 ± 0.33 mm long, 1.95 ± 0.25 mm wide; femur II 1.71 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.09, PME 0.09, PLE 0.09, AME–AME 0.06, AME–ALE 0.04, PME–PME 0.09, PME–PLE 0.06, ALE–PLE 0.08; median ocular quadrangle 0.28 long, 0.25 wide at front, 0.27 wide at back. Retrolateral tibial apophysis long, slender, essentially straight, minutely bifid at tip (Figs. 433, 434); embolus long, broad, tapered toward tip, with tip fine and somewhat bent (Fig. 433); median apophysis long, hair-like, straight, essentially parallel to embolus; seminal duct forming narrow loop at base of genital bulb (Fig. 433).

Female. Total length 7.75 ± 1.19 mm; carapace 3.64 ± 0.72 mm long, 2.75 ± 0.46 mm wide; femur II 2.46 ± 0.36 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.11, ALE 0.13, PME 0.11, PLE 0.11, AME–AME 0.08, AME–ALE 0.04, PME–PME 0.11, PME–PLE 0.10, ALE–PLE 0.12; median ocular quadrangle 0.36 long, 0.30 wide at front, 0.33 wide at back. Epigynum with distinct lateral margins and with short ovoid posterior ducts (Fig. 435); spermathecae large, kidney-shaped (Fig. 436).



Figs. 433–436. Genitalia of *Herpyllus ecclesiasticus*. 433, 434, palpus of male; 433, ventral view; 434, retrolateral view; 435, 436, epigynum and spermathecae; 435, ventral view; 436, dorsal view. *e*, embolus; *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *sem*, seminal duct; *spt*, spermatheca.

Comments. Individuals of *H. ecclesiasticus* are distinguished from those of the other Canadian species in the genus by the following combination of characters: retrolateral tibial apophysis long and slender, median apophysis hair-like and lying parallel to embolus, seminal duct narrowly looped at base of genital bulb, and epigynum with only lateral margins distinct and with short ovoid posterior ducts.

Range. Southern Alberta to Nova Scotia, south to Texas, northern Mexico, and Florida. Occurrence appears to be restricted to regions east of the continental divide, west of which *H. propinquus* replaces *ecclesiasticus*.

Biology. Mature males and females have been taken year round. Specimens have been collected in buildings and under logs and stones, and in association with oak, maple, cottonwood, basswood, sycamore, locust, pine, cypress, Spanish moss, palmetto, and pitcher plants. Kaston (1948) recorded overwintering individuals in thin silken sacs under loose tree bark; he also noted an egg sac, which was flat and disc-shaped, spun under loose bark and guarded by the female.

Herpyllus propinquus (Keyserling)

Figs. 437–440; Map 70

Prosthesima propinquus Keyserling, 1887:430, fig. 7 (pl. 6).
Herpyllus propinquus: Platnick and Shadab 1977:9, figs. 9–14, 130.
Herpyllus californicus Banks, 1904*b*:110, fig. 11 (pl. 5).
Herpyllus piedicus Chamberlin and Woodbury, 1929:132, figs. 6, 7 (pl. 1).

Male. Total length 6.02 ± 0.58 mm; carapace 2.91 ± 0.25 mm long, 2.24 ± 0.21 mm wide; femur II 2.10 ± 0.20 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.09, ALE 0.10, PME 0.11, PLE 0.10, AME–AME 0.09, AME–ALE 0.03, PME–PME 0.09, PME–PLE 0.07, ALE–PLE 0.12; median ocular quadrangle 0.37 long, 0.27 wide at front, 0.31 wide at back. Retrolateral tibial apophysis long, slender, essentially straight, minutely bifid at tip (Figs. 437, 438); embolus long, broad, abruptly narrowed at tip; median apophysis long, rod-like, tapered, lying obliquely in relation to embolus; seminal duct making broad loop at base of genital bulb (Fig. 437).

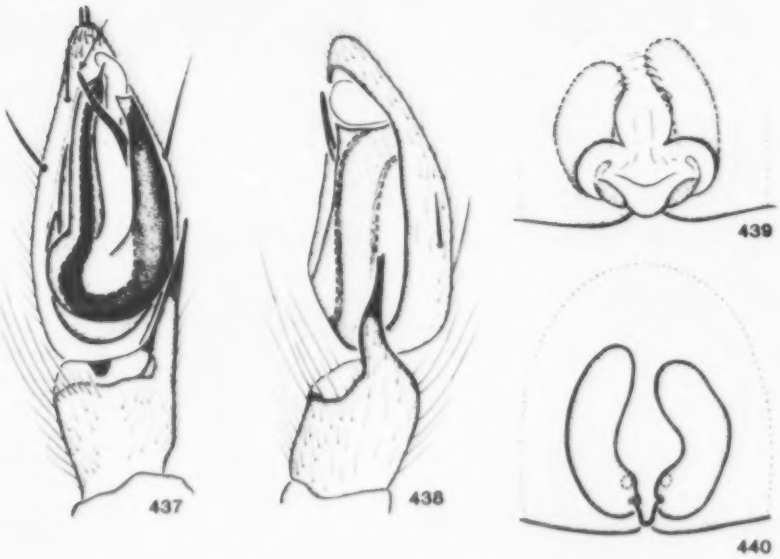
Female. Total length 8.42 ± 1.21 mm; carapace 3.92 ± 0.41 mm long, 2.97 ± 0.31 mm wide; femur II 2.61 ± 0.16 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.14, ALE 0.14, PME 0.12, PLE 0.14, AME–AME 0.09, AME–ALE 0.04, PME–PME 0.14, PME–PLE 0.14, ALE–PLE 0.16; median ocular quadrangle 0.51 long, 0.37 wide at front, 0.38 wide at back. Epigynum with

distinct lateral margins and with paired long angled posterior ducts (Fig. 439); spermathecae large, kidney-shaped (Fig. 440).

Comments. Individuals of *H. propinquus* are distinguished from those of the other Canadian species of *Herpyllus* by the following combination of characters: retrolateral tibial apophysis long and slender, median apophysis somewhat tapered and lying obliquely in relation to embolus, seminal duct broadly looped at base of genital bulb, and epigynum with only lateral margins distinct and with long, angled posterior ducts.

Range. Southern British Columbia and Montana, south to central Mexico.

Biology. Mature males and females have been taken year round. Specimens have been collected in houses and pack rat nests, and in association with oak, pinyon pine, juniper, mesquite, nolina, yucca, ephedra, and allthorn.



Figs. 437–440. Genitalia of *Herpyllus propinquus*. 437, 438, palpus of male; 437, ventral view; 438, retrolateral view; 439, 440, epigynum and spermathecae; 439, ventral view; 440, dorsal view.

Genus *Scotophaeus* Simon

Spiders of the genus *Scotophaeus* are medium to large and brown or reddish brown. The European members are all found mainly in or on buildings but occasionally in natural outdoor habitats such as cavities in tree bark. One of these European species, *S. blackwalli* (Thorell), has been transported to the west coast of North America, to the Gulf of Mexico area, and to South America (Platnick and Shadab 1977).

Description. Total length 6.7–16.0 mm. Carapace elongate-ovoid, narrowed anteriorly, brownish, with dense covering of pale setae and with many longer erect dark setae. From front and from above, both rows of eyes procurved; anterior eyes round, approximately equal in size; posterior median eyes approximately rectangular; posterior lateral eyes ovoid; posterior eyes approximately equal in size; anterior median eyes separated from each other by their maximum width or less and from anterior lateral eyes by half their width or less; posterior median eyes separated from each other and from posterior lateral eyes by approximately their width; median ocular quadrangle longer than wide, as wide at back as at front or wider at back. Chelicerae with 3 promarginal teeth and 1 retromarginal tooth. Palp-coxal lobes short to long, sinuous along lateral margin, and with serrulae. Sternum elongate, brownish, with long erect setae. Leg formula 4123; segments reddish brown, with scopulae and claw tufts, with shallow trochanteral notches, without preening comb; typical macrosetal pattern: femora I, II d1-1-0, p0-1-1, III d1-1-1, p0-1-1, r0-1-1; IV d1-1-1, p0-1-1, r0-0-1; patellae III, IV r0-1-0; tibiae I, v1-1-1; II v0-1-1; III d1-0-0, p-1-1-1, v2-2-2, r0-1-1; IV p1-1-1, v2-2-2, r1-1-1; basitarsi II v2-0-0; III p1-2-2, v2-2-2, r1-1-2; IV p1-2-2, v2-2-2, r1-2-2. Abdomen brownish, covered dorsally with silky black tawny or white setae; male abdomen with dorsal scutum. Male palpus (Figs. 441, 442) with retrolateral tibial apophysis short to moderately long, stout; embolus moderately long, sinuous, or coiled; median apophysis short, hooked. Epigynum (Figs. 443, 444) with dark mesal plate containing copulatory openings and sometimes with minute hood; spermathecae large, with median ducts having bulbous tips.

Comments. Members of the genus *Scotophaeus* are distinguished from those of the other Canadian gnaphosid genera by the following combination of characters: legs without preening comb and trochanters with shallow notch, tibia IV with one or no dorsal macrosetae, chelicerae with a retromarginal tooth, abdomen unicolorous, median apophysis hooked, and epigynum with paired median ducts.

The genus contains approximately 46 world species of which only *S. blackwalli* occurs in North America (Platnick and Shadab 1977). Canadian records of this species are few.

Scotophaeus blackwalli (Thorell)

Figs. 441–444; Map 68

Drassus blackwalli Thorell, 1871:179.
Drassus gotlandicus Thorell, 1871:180.
Drassus ravidus Pavesi, 1873:119, fig. 2.
Scotophaeus blackwalli: Simon 1893:371; Platnick and Shadab 1977:41, figs. 123–129; Grimm 1985:172, figs. 199*a,b*, 200, 202*a,b,c*.
Drassus immundus Kulczyński, in Chyzer and Kulczyński, 1897:213, fig. 46 (pl. 8).
Drassus voigtii Bösenberg, 1899:117, fig. 5 (pl. 1).
Drassodes californicus Banks, 1904*a*:330, figs. 8 (pl. 38), 28 (pl. 39).
Herpyllus pius Chamberlin, 1919*a*:6, fig. 4 (pl. 2).

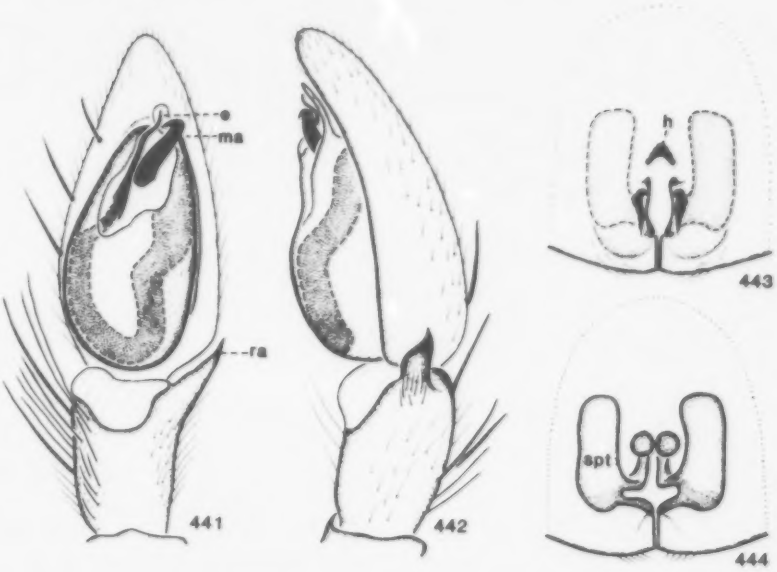
Male. Total length 7.44 ± 1.17 mm; carapace 3.57 ± 0.58 mm long, 2.62 ± 0.40 mm wide; femur II 2.37 ± 0.33 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.14, ALE 0.15, PME 0.14, PLE 0.14, AME–AME 0.15, AME–ALE 0.05, PME–PME 0.14, PME–PLE 0.25, ALE–PLE 0.15; median ocular quadrangle 0.52 long, 0.42 wide at front, 0.42 wide at back. Retrolateral tibial apophysis short, rather stout, abruptly tapered to fine point (Figs. 441, 442); embolus fine, sinuous, arising at approximately two-thirds distance from base of genital bulb (Fig. 441); median apophysis rather long, finely hooked at tip, and arising at midline of genital bulb (Fig. 441).

Female. Total length 9.16 ± 0.85 mm; carapace 4.45 ± 0.46 mm long, 3.28 ± 0.29 mm wide; femur II 2.68 ± 0.25 mm long (10 specimens measured). Eye sizes and distances between them (in millimetres): AME 0.17, ALE 0.16, PME 0.14, PLE 0.16, AME–AME 0.17, AME–ALE 0.10, PME–PME 0.22, PME–PLE 0.37, ALE–PLE 0.25; median ocular quadrangle 0.63 long, 0.51 wide at front, 0.50 wide at back. Epigynum with small hood and with median septum short and low (Fig. 443); spermathecae rather large, somewhat rectangular, with two pairs of mesal ducts, the anterior pair having bulbous tips (Fig. 444).

Comments. Individuals of *S. blackwalli* are distinguished by the characters given for the genus *Scotophaeus*. There is a resemblance between the spermathecae of *S. blackwalli* and those of certain members of *Nodocion* and *Sergiolus*, but the epigynum of *S. blackwalli* differs in having two pairs of mesal ducts rather than one.

Range. Southern British Columbia, south along the Pacific coast to Baja California, Mexico, and along the U.S. Gulf of Mexico coast; Peru, Brazil, Argentina; Europe.

Biology. Mature males and females have been taken year round. Specimens have been collected in and on buildings, under loose bark of pear and cherry trees, and on shrubs and chaparral.



Figs. 441–444. Genitalia of *Scotophaeus blackwalli*. 441, 442, palpus of male; 441, ventral view; 442, retrolateral view; 443, 444, epigynum and spermathecae; 443, ventral view; 444, dorsal view. *e*, embolus; *h*, hood; *ma*, median apophysis; *ra*, retrolateral tibial apophysis; *spt*, spermatheca.

Glossary

abdomen The posterior body division of a spider, divided from the cephalothorax by the pedicel.
alveolus A cup-like cavity on the ventral side of the cymbium of the male palpus and containing the genital bulb.
anal tubercle A small prominence at the tip of the abdomen; the anus is situated on its ventral surface.
anterior Pertaining to foremost end of the body or to one of its main divisions.
anteriorly Toward the foremost end of the body.
anterolateral Pertaining to the anterior end and to one side of the body.
anterolaterally Toward the anterior end and to one side of the body.
anteromesal Pertaining to the anterior end of the body and to the midline.
anteromesally Toward the anterior end of the body and the midline.
apical Pertaining to the apex, or tip.
apophysis A projection usually found on the male palpal tibia and having a sexual function.

basal Pertaining to the base of an appendage or segment.
basally Toward the base of an appendage or segment.
basitarsus The basal subdivision of the spider's leg tarsus; called metatarsus by many authors.
bifid Subdivided.
book lungs Paired book-like respiratory organs near the anterior end of the abdominal venter.

carapace The dorsal plate of the cephalothorax, which bears the eyes and the dorsal groove.
carina A keel or crest.
cephalothorax The undivided head–thorax, or anterior body division, to which are appended the chelicerae, palpi, and legs.
chelicera (pl., **chelicerae**) Paired organs for seizing and pinching, attached at the anterior end of the cephalothorax; each comprises a large basal segment and a movable fang with, internally, the associated venom gland and muscles.
claw A short, curved, usually toothed process at the tip of the pretarsus of the leg or palpus.
claw tuft A bundle of stiff setae at the tip of the leg tarsus in some Gnaphosidae. The setae provide adhesion on slippery surfaces.
conductor A structure in the male copulatory organ on which the tip of the embolus rests.
copulatory openings The paired openings in the epigynal plate receiving the male emboli during copulation.

copulatory tubes The paired tubes leading inward from the copulatory openings of the female and receiving the emboli of the male in copulation.
coxa (pl., **coxae**) The first, or most basal, segment of the leg or palpus.
cymbium The tarsus of the male palpus, cupping the alveolus and the genital bulb on its ventral surface.

dentate Toothed.
denticle A small tooth.
distal Pertaining to the tip of an appendage or organ.
distally Toward the tip of an appendage or organ.
distitarsus The distal subdivision of the leg tarsus.
dorsal Pertaining to the uppermost surface of the body, to an appendage, or to an organ.
dorsal groove A median furrow on the carapace marking an ingrowth of the body wall on which the dilator muscles of the sucking pump are attached.
dorsally Toward the uppermost surface of the body, of an appendage, or of an organ.
dorsoapical Pertaining to the dorsum and the tip.
dorsodistal Pertaining to the dorsum and the tip.
dorsoventral Pertaining to the dorsum and venter together.
dorsum The entire dorsal surface of the body or of the abdomen alone.

emarginate Having a notched margin.
embolar process A sclerite that projects from the base of the embolus.
embolus The intromittent, or inserting, organ of the male palpus.
epigynum The copulatory organ of the female located in the midline anterior to the genital groove.

fang The piercing distal segment of the chelicera.
fang furrow A depression along the distomesal surface of the basal segment of the chelicera; it receives the folded fang.
femur (pl., **femora**) The third from the base and usually longest segment of a leg or palpus.
fertilization tubes The paired tubes by which semen stored in the spermathecae of the mated female is conveyed to the eggs as the latter pass out of the body.
front That part of the carapace between the anterior margin and the anterior row of eyes; called the clypeus by many authors.

genital bulb The copulatory apparatus lying within the alveolus of the cymbium on the male palpus.
genital groove A transverse groove on the venter of the abdomen in which lie the openings of the internal genitalia (ovaries or testes) and a pair of book lungs.

haematodocha A membranous sac in the genital bulb; it fills with hemolymph, thus forcing the embolus into the female's copulatory opening.
hemolymph Spider blood.
hood A pocket-like structure at the anterior end of the epigynum in some ground spiders.

labium The lower lip, which closes the preoral cavity behind.
lamina A flat lobe.
lateral Pertaining to the side.
laterally Toward the side.

macroseta A stout erectile seta on the legs or palpi; called a spine by many authors.
median Pertaining to the middle.
median apophysis An appendage of the tegulum on the genital bulb of the male palpus.
median septum A raised median longitudinal sclerite in the epigynum.
mesal Pertaining to the midline.
mesally Toward the midline.
midline An imaginary line dividing the body or an appendage into right and left halves.

palp-coxal lobes The paired mesal lobes on the prolateral surfaces of the palpal coxae; called endites by many authors.
palpus (pl., **palpi**) One of a pair of leg-like appendages arising between the mouth and the first pair of legs; in adult males, modified as a semen-storing and copulatory organ.
paramedian Beside the midline.
patella The fourth segment from the base of a leg or palpus; it has a rigid connection with the tibia.
pedicel The slender flexible connection between cephalothorax and abdomen.
posterior Pertaining to the hindmost end of the body or of one of its main divisions.
posteriorly Toward the hindmost end of the body or of one of its main divisions.
preoral cavity The entrance passage to the mouth.
pretarsus The seventh, or terminal, segment of a leg or palpus; it bears the claws.
procurved Denotes the anterior displacement of the ends of a transverse, otherwise straight, row (of eyes, for example) or groove.
prograde Denotes the normal orientation of the legs with the limbs not rotated on their bases; also used to describe the mode of locomotion by spiders that have prograde legs.
prolateral Pertaining to the lateral surface of a leg or palpus nearest the anterior end of the body when the limb is extended at a right angle to the midline.

prolaterally Toward the lateral surface of a leg or palpus nearest the anterior end of the body when the limb is extended at a right angle to the midline.

promargin The anterior margin of the cheliceral fang furrow.

proximal At or near the base.

punctate Pitted.

recurved Denotes the posterior displacement of the ends of a transverse, otherwise straight, row (of eyes, for example) or groove.

reticulation A net-like pattern.

retrolateral The lateral surface of a leg or palpus nearest the posterior end of the body when the limb is extended at a right angle to the midline.

retrolaterally Toward the lateral surface of a leg or palpus nearest the posterior end of the body when the limb is extended at a right angle to the midline.

retromargin The posterior margin of the cheliceral fang furrow.

scape A median unpaired process of the epigynum, usually attached anteriorly and free to varying degrees posteriorly.

sclerite A thickened usually well-sclerotized plate in the body wall.

sclerotized Hardened and darkened through the tanning of body-wall proteins.

scopula (pl., **scopulae**) A brush of stiff flattened setae along the ventral surface of the leg; a scopulate leg is one that is provided with a scopula.

scutum (pl., **scuta**) A sclerite covering part of the dorsal surface of the abdomen in many ground spiders.

segment One of a series of ring-like divisions into which the body or an appendage is divided.

seminal duct A tube that conducts semen from the storage organ within the genital bulb to the embolus.

serrated Notched along the edge like a saw.

serrula (pl., **serrulae**) The hardened serrated edge of the palp-coxal lobes.

seta (pl., **setae**) An elongated outgrowth of the body wall secreted by a single cell and supplied with a nerve; setae form the usual covering of the spider's body.

sinuous Undulating smoothly.

spermatheca (pl., **spermathecae**) One of a pair of semen-storing organs in the female spider.

spermathecal organ A small prominence associated with the spermatheca.

spine A fixed, usually pointed, outgrowth of the body wall; used by many authors to denote leg macrosetae.

spinnerets The paired appendages at the posterior end of the abdomen through which liquid silk passes from the silk glands to the outside; they are in three pairs: anterior, median, and posterior.

spiracle Tracheal opening in the body wall, in ground spiders situated on the abdominal venter immediately anterior to the anterior spinnerets.
sternum The ventral wall of the cephalothorax.
subapical Close to the apex, or tip.
subtegulum A ring-like sclerite in the wall of the genital bulb of the male palpus between the alveolus and tegulum.

tarsus (pl., **tarsi**) The sixth segment of a leg or palpus from the base; in legs, subdivided into basitarsus and distitarsus.
tegulum A sclerite, usually the largest, in the genital bulb of the male palpus.
tibia (pl., **tibiae**) The fifth segment of the leg or palpus from the base; it is rigidly connected to the patella.
tortuous Undulating irregularly.
trachea One of the respiratory tubes within the body.
trochanter The second segment of the leg or palpus from the base.
truncate Squared at the tip.
tubercle A small, fixed, usually rounded prominence.

venom gland The venom-secreting gland within the chelicera and sometimes extending into the interior of the cephalothorax; its duct opens on the tip of the fang.
venter The undersurface of the body; also can refer to the undersurface of the abdomen or of an appendage alone.
ventral Pertaining to the venter.
ventrally Toward the venter.

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